Non-Wood Forest Product Research in Central Africa

A State of the Sector

Report prepared for:

The Central African Regional Program for the Environment (CARPE)

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The Central African Regional Program for the Environment (CARPE)

CARPE is a USAID-supported initiative that aims, over five years, to identify and begin to establish the conditions and practices required to reduce deforestation and biodiversity loss in the Congo Basin. The expanded knowledge base, and enhanced individual and institutional capacity that result from the implementation of CARPE will serve as the essential foundation for a longer term (15-20 year) effort to sustainably manage forest resources, thus conserving the region's biodiversity and averting potentially negative changes in regional and global climate. CARPE's core philosophy is to facilitate the meaningful involvement of African partners and to ensure that African decision makers have access to and the capacity to use information critical to rational forest resource management.

Contents

4. Suggested Actions to Strengthen the NWFP sector

Domestication/Cultivation
Technical/research issues
Policy/tenure issues
Education and Consciousness-raising
Capacity building
Networks/Communication Issues/Information Transfer
DRAFT Proposal for an International Expert Meeting on Non Wood Forest Products in the Congo River Basin of central Africa

5. Appendices

1. Cameroon Results

2. Gabon Results

3. Sample Questionnaire

4. List of Contacts
   - Cameroon
   - Gabon
   - Congo
   - Equatorial Guinea
   - Europe
   - USA

5. List of Publications garnered during Survey

6. References specific to Equatorial Guinea

Purpose

Non-wood forest products (NWFP) are gaining increased attention as a supplement to small farmer livelihoods, a possible alternative or complementary forest use to timber extraction, and a source of medicinal, beauty and alimentary alternatives. The possibilities offered by the sector in Central Africa are just now beginning to be understood. Various researchers, institutions, projects, and companies, have begun exploring different aspects of the sector. While it is still very early days, a number of high value products have been identified, the commercialization of which could play an important role in fulfilling the sector's promise.

While the sector does appear to hold some promise, its potential in Central Africa is far from being realized. Work that has been done to date has often been completed in relative isolation, with little knowledge of similar or related work being completed by others working in the same sector, even in the same country. Opportunities to share lessons learned, or to build on successes and missteps of others have yet to be fulfilled.

In some cases policy makers may not fully appreciate the sector's potential to contribute to the regional or national economy. This is not surprising, as few demonstrable models yet exist and data supporting or refuting the sector's role are scant. In Central Africa approaches to data collection, identification of priorities, analytical frameworks, and levels of effort have varied considerably. This has been a good thing in that it allows now for a synthesis that should ultimately lead to a more efficient, knowledge-based approach.

At present the timing seems right to bring together the community of interest to share experiences and explore the sector's future potential. A first step towards such an event is a regional assessment/identification of individuals and institutions working in the sector. The present report seeks to accomplish that for Cameroon, Gabon, and the Republic of the Congo, and Equatorial Guinea.

Arguably, the most important NWFP in the region is bushmeat. The market for, and exploitation of, wild animal meat is seemingly endless. Bushmeat's socio-economic and ecological importance is currently the focus of considerable research, leaving other NWFP relatively under-explored. One of the goals of the present survey is to address this imbalance and for this reason bushmeat is not specifically included in the operating definition of NWFP. That said, in Gabon especially, its role and importance is such that almost any forest-based research is touched by bushmeat, as is at times reflected in the discussion.

This second edition includes information on the state of the sector in Equatorial Guinea collected following completion of the initial assessment.

Primary Findings

* Very few people in administrative positions, either within government organizations or integrated development conservation projects, are sensitive to or aware of the NWFP sector.

* Several NWFP plant species, including *Prunus africana, Irvingia gabonensis, Gnetum africanum, Garcinia mannii* and rattan species, have demonstrated commercial markets and potential for alternative income to farmers.

* Considerable doubt exists among researchers and conservation development workers as to the sustainable commercial harvest of wild NWFP populations. Neither formal or informal governing structures exist that would effectively guide product extraction at ecologically sound levels.

* Domestication of NWFP with high market potential is seen as the most likely way to conserve wild populations, as well as maintaining the genetic material for the species.

* Respondents identified slash and burn agricultural techniques as the largest threat to the natural forest in Cameroon; and timber harvest the largest threat in Gabon.

* Formerly wild NWFP, including *Dacryodes edulis*, *Elaeis guineensis,* and many others with little commercial market, have been domesticated or protected by rural dwellers. Others, such as *Irvingia gabonensis*, are protected by rural populations, but ignored and often cut in timber harvesting activities.

* NWFP are not felt to be a commercially viable alternative to timber harvest. Rather, the management of NWFP is seen as one of many tools available to land managers seeking to fully capture a forest's economic potential. Timber harvest is not seen as being innately unsustainable in the region. However, current harvest practices are generally seen as falling far short of sustainable forest management.

* Commercial hunting and habitat loss or degradation are felt to be major factors in the precipitous population declines of major game species in Cameroon, Congo and Gabon.

1. Introduction

A. Importance of the forests of the Congo River Basin

The Central African region, encompassing the Congo River watershed, contains the second largest contiguous tropical dense forest in the world (second only to the Amazon in South America), and the largest on the continent of Africa. This forest of some 170 million hectares (approximately ¼ the area of the contiguous United States) contains a carbon inventory about 1,000 times greater than current CO_2 emissions from the region. If the rate of deforestation in the Congo Basin begins to follow the trajectory of West Africa, the Congo Basin could contribute significantly to global warming over the next 50 years. Reduced rainfall, and loss of soil nutrients as a result of soil erosion from exposed forest floors will increase the likelihood that high biomass moist forest ecosystems are gradually replaced by lower biomass woody savanna and savanna systems. At the same time the environmental impacts of deforestation could significantly damage the agricultural and economic productivity of the region, and threaten the livelihoods of over 30 million people.

This tropical forest ecosystem differs dramatically from other major tropical watersheds in the world in that 75-95 percent of the Basin's rainfall comes from recycled water generated by transpiration within the region. The Congo Basin's reliance on recycled water makes regional rainfall patterns highly susceptible to changes in plant cover associated with deforestation. As goes the forest so goes rainfall.

The Central African forest is also important from a biodiversity perspective. Much of Africa's biological diversity is believed to have originated from this region, and these forests remain extremely rich in species and a major center of global endemism. The importance of the stability of the Congo Basin complex of natural systems cannot be overemphasized, either in ecological, social, or economic terms. Significant conversions of these systems to more simple, less resilient systems, could have far reaching environmental impacts, with devastating cascading affects on related regional ecosystems. Because of this, many conservation activities have been undertaken to protect rare and endangered species, as well as their habitat within forest ecosystems.

Conservation of Central Africa's forest requires more than just maintenance of forest cover. Harvesting practices that leave the tree canopy relatively intact may have severe adverse impacts on populations of animals, plants and other non-wood forest products (NWFP). In Cameroon, Gabon and Congo, forest cover and extent is impressive. Under these circumstances it may be difficult to convince people of the forest's imperiled state. Nevertheless, rural and urban populations alike note that they must travel farther and work harder to obtain NWFP than was the case as recently as ten to twenty years ago. In many cases, bushmeat, and commercially valuable plant species such as *Prunus africana,* are being harvested at unsustainable rates, while leaving forest cover essentially unchanged (at least in the short term). Conservation of Central Africa's forest will require a deeper knowledge of the interrelated processes at work, identification of

viable land and resource use alternatives, and with that knowledge, an enhanced ability on the part of resource users and policy makers to make informed choices in their management decisions.

B. Non-Wood Forest Products in the Congo River Basin

The sustainable exploitation of non-wood forest products (NWFP) may help not only to preserve a significant part of the biological diversity of the tropical forest but also could improve the welfare of local communities and the State at local and international levels. Markets for NWFP are increasing, especially in urban and peri-urban areas of the Congo Basin region (see for example the case of the marketing of *Prunus africana* bark, or the trade of *Gnetum africanum* to neighboring Nigeria from Cameroon). There is strong or growing local demand for such products as bushmeat, forest plant foods (especially species of cultural importance), building materials, palm oil, palm wine, chewing sticks, fuelwood, cola nuts, medicines, as well as manufactured goods such as furniture. However, information necessary for the development of the NWFP sector (market demand, product availability, geographic distribution, type of products, export, etc.) is scarce.

On a global scale, awareness of the sector is increasing at a rapid rate. A number of workshops have been held, including two in Kenya. To date, however, there has been little focus on the sector in Central Africa. Different projects and researchers are studying different components of the sector, often without knowledge of what others are doing.

From a conservation perspective, the development of the NWFP sector may mitigate some of the pressure currently being placed on the forest. Discussions of deforestation in Central Africa usually attribute forest loss to one of several "usual suspects." Agriculturally-based forest conversion is often among the fore. Regardless of the exact degree of agriculture's contribution to deforestation, it is clear that reducing the threat to the Congo Basin's forest will require providing the region's inhabitants with less damaging alternatives (that compete for labor and capital) to the traditional practice of slash and burn agriculture, particularly in high-population density areas.

At this early stage, an opportunity exists to help shape the development of the sector. As interest grows, a coordinated approach will be particularly important. Agreed guidelines for data collection and data sharing, and a mechanism for information exchange will facilitate future research and lead to a better understanding of the social, economic, and biological importance of the sector and its potential to provide small farmers with sustainable sources of income.

C. NTFP vs. NWFP

Non-Timber Forest Products (NTFP) and Non-Wood Forest Products (NWFP) are the two

groupings that most clearly describe the sector. NTFP is the more general, and includes woody products, including fuelwood, charcoal and wood used in carvings and other artisanal crafts. NWFP excludes all woody products. Inevitably there are gray areas between these categories. For the purposes of this paper, it is less important to delineate specifically between NTFP and NWFP than to illuminate the presence of, and importance of, forest products apart from wood resources. To simplify, NWFP is used in this report; however, at this stage in the development of the sector in the Congo Basin, it would be imprudent to exclude someone from the conversation because their research addresses fuelwood collected within a forest system.

Within the literature, most attention is focused on economically or socially important, tangible NWFP; fruit, medicinals, and leaves, for example. It is important, however, to recognize that benefits arising from an intact forest, such as conservation of soil, water quantity and quality, the forest's role in the hydrologic cycle, downstream fisheries, and the role of forests in carbon sequestration are also considered by some to fall within the realm of NWFP. For the purposes of this report these benefits were not considered.

2. Regional Survey - Design and Administration

A CARPE-sponsored team conducted a regional survey of institutions, stakeholders, researchers, and projects with an interest in the NWFP sector to provide a state-of-the-sector overview, and to develop recommendations for a Regional Workshop. This report reflects the results of that survey. Subsequent to the completion of the field assessment for Gabon and Cameroon, a desk study was commissioned for the Republic of the Congo, and a brief field assessment was completed in Equatorial Guinea, the results of which are included in this report. As political and security conditions permit, it may be extended to the other countries within the Congo River Basin (Central African Republic, and the Democratic Republic of Congo).

Following the arrival in Cameroon of Ms. Laurie Clark, USDA Forest Service, she and Mr. Nicodeme Tchamou, International Institute of Tropical Agriculture (IITA), finalized the questionnaire which was later used in semi-structured interviews, each of which would take approximately 45 minutes to conduct. Appointments were established, a test run given of the interview, and the process began. Seventeen interviews were conducted in Yaounde, Kribi, and Limbe.

In Gabon, the assessment team worked closely with the CARPE regional office in Libreville. Before the team arrived, Program Officer Mr. Clair Mbourou identified and established interview appointments with a variety of key actors. All interviews, with fourteen respondents, took place in Libreville.

3. Findings

Previous attempts to conduct literature reviews and build an image of current activities in the region failed to sufficiently illustrate the level of activity in the NWFP sector, at least in Cameroon and Gabon. The sub-regional survey, detailed in this report, shows a NWFP sector still largely informal, but with a few economically significant species already being exploited. Sociological and anthropological research in the region have identified certain species and uses but have not, generally speaking, provided in-depth analysis.

A. Cameroon Survey

• Current State of the Sector

Cameroon's varied topography and climate diversify land use, with about 50 percent in forest and woodland. Offshore oil reserves, some mining, a strong agricultural sector together with extensive forests have endowed Cameroon with a rich variety of natural resources. In the past, Cameroon produced sizable amounts of coffee, cocoa, and petroleum; worldwide declines in the prices for these resources have slowed economic growth considerably. Currently, slash and burn agricultural techniques and illegal commercial hunting rank among the highest areas of environmental concern.

Most of the people interviewed in Cameroon were associated with international NGOs. For the most part, their reasons for working with NWFP reflect their organizations' objectives. As integrated conservation and development projects their ultimate objective might be to conserve the natural forest system, or to develop sustainable management of the forests; most often their interest in NWFP is as an economic alternative for forest dwelling rural populations.

Cameroon's importance as a major center of biodiversity, with rich pockets of endemism, generates strong interest among researchers and conservationists. Large-scale landscape changes caused by conversion of forests to agriculture and growth of urban areas (for example), as well as relatively small-scale changes such as might be caused by a dam, natural disturbance, or even the local extinction of a wild species through overharvest, are seen as pressing concerns.

Researchers in Cameroon tend to see the development of the NWFP sector as a two-edged sword; beneficial on the one hand, as it imbues the standing forest with value; and detrimental on the other hand, as it raises the threat of overuse as a NWFP becomes economically valuable.

The study of NWFP often falls into one of three areas: NWFP as commodities; NWFP traditional use and knowledge; and the specific biology and role of NWFP within the ecology of the forest system. Research in Cameroon falls within these categories as well. Past work has concentrated more on the biology and domestication of specific plants (notably *Irvingia* spp., *Dacryodes edulis*, and *Prunus africana)*, and traditional use and knowledge (mostly through anthropological research, where the focus is on humans, with their physical environment playing a secondary role, and NWFP occurring incidentally within that). Recent work addresses NWFP as commodities, with attendant market analysis, chain of production, and pricing studies.

Research addressing specific products has focused primarily on fruits (*Irvingia, Dacryodes*); nuts (*Irvingia*), and a range of medicinal plants (*Prunus africana* being the most commercially successful; see also the initial, failed, promise of *Ancistrocladus*). Other frequently mentioned species include: rattan (a variety of cane species), used in furniture construction, mats and baskets; *Gnetum africanum*, valued for its leaves in stews; *Garcinia mannii*, a shrub species whose wood is used in chewsticks; and *Cola acuminata*, whose nuts play an important social and economic role in traditional west and central African cultures. These species and others are increasingly threatened as habitat loss, destructive harvesting practices, and overharvesting contribute to reduce wild populations below recoverable levels. To date, these species have not been satisfactorily domesticated, and the species as a whole are vulnerable to the stresses placed on the wild populations.

While there are targeted NWFP-focused research efforts underway in Cameroon, most often the approach taken has been limited to the deliberate or (more often) incidental cataloging of NWFP by rural populations as they participate in rural development efforts. Examples of villager-initiated NWFP systems of interest include bee-keeping, snail farming, and the exploitation of the species mentioned above.

A review of specific initiatives underway in Cameroon includes the following:

> CIFOR is addressing the production, marketing and consumption of NTFP in the region, primarily through the use of market surveys. A recently initiated CIFOR study addresses the role of NTFP in household-level livelihoods.
>
> Tropenbos-Cameroon has performed small-scale market surveys of species, production, and uses of different NWFP; additionally Tropenbos has completed an exhaustive inventory assessment of economic and ecological aspects of specific NWFP within their project region. Student researchers associated with Tropenbos and APFT study different ethnic populations, as well as urban/rural groupings, of people's uses and perceptions of the forest.
>
> The Mount Cameroon Project, IUCN, SNV and WWF are addressing NWFP mostly as a function of villager-initiated identification of a given NWFP; in this sense usually as an economic alternative. The Mount Cameroon Project and ICRAF have both been active in the development of domestication programs. The Mount Cameroon Project has also been active in the establishment of cooperatives to regulate the harvesting of scarce, high value products.
>
> WWF is now in the initial stages of collaboration with AIDEnvironment, a Dutch firm, to develop a methodology to assess a forest's NWFP value.
>
> IITA, Tropenbos, and APFT address community property rights and tenure issues relating to who can harvest which products where.

WWF, Tropenbos, Peace Corps, ECOFAC, IUCN and AFAN are working or propose to address NWFP within the context of sustainable forest management; as one option in a portfolio which includes using and managing the system for a variety of uses including logging, fisheries, watershed, human habitation and agriculture.

ICRAF specifically has done genetic and domestication research on *Prunus africana, Irvingia* species, and *Dacryodes edulis.* APFT has studied chains of production and the marketing of rattan. The Mt. Cameroon Project works with the domestication and cultivation of several farmer-identified NWFP, including *Prunus africana,* rattan species, *Gnetum africanum* and others. IRAD researches phytogenetic resources, focusing primarily on wild fruit trees, including *Dacryodes edulis*. Some work has been done to explore the efficacy and marketability of medicinal compounds derived from plants from Cameroon's forest. Time constraints prohibited contacting these individuals.

To date, despite the richness of possibilities for collaboration that these examples offer, there has been little effort at collaboration or data sharing.

Obviously, the research results obtained from this diverse array of activities are targeted to reach different audiences. Some are aimed at the regional and global scientific community, while others are focused more directly on rural populations whose livelihoods depend on forest resource use. It is important to use communication technology that is appropriate to the target audience of an activity. For example, it is all very well to study *Prunus africana*, but who will benefit from that knowledge? The scientific community has an interest, as does the pharmaceutical community and associated businesses who collect, transform and market medical products from its bark. Equally, villagers who harvest or have tenure to increasingly rare and valuable *Prunus* stands have an interest in any research results. Communicating information to each of these interest groups might best be achieved through a variety of means.

By far the greatest target population for NWFP research results in Cameroon is rural villagers. This finding likely reflects the current assessment's sample bias toward staff of integrated development projects. It also reflects the activism of a Cameroonian population that has generated a Forest code including Community Forestry Management, with potential for local control of forest resources. Interviewees often reported that the greatest threat to Cameroon's forests was the practice of slash and burn agriculture. Rural villagers are seen as major players in conversion of forest systems, and as a result are frequently targeted by research and conservation projects.

In spite of this, the most common means of information transfer were scientific journal articles and internal reports to a parent funding organization. Much less frequently, information transfer to villagers occurred, this mostly via village meetings. Research results are also passed via trainings, seminars, and conferences, presumably to other scientists and technicians. Recent and welcome means of information transfer and educational efforts include attractive pamphlets, postcards, calendars as well as guidebooks to local flora and fauna. Well-written, attractive

pamphlets and other educational material may be a far more effective way to transfer information to the vast majority of people than technical reports.

A significant amount of research is being conducted by university students whose results may or may not be widely available. Several of the personnel interviewed were Ph.D. students, from Africa, Europe and North America; overwhelmingly, their research was anthropological, and their NWFP data reflect a human focus. It also tends to be qualitative, descriptive or anecdotal rather than quantitative or biological in nature. This does not render it less valuable, but it is more difficult to capture that data in traditional valuations of forest products and does not lend itself to drawing conclusions about the impact of NWFP use on family income or forest ecology.

• Can NWFP contribute to Forest Conservation in Cameroon?

The most interesting results of the assessment were responses to a series of open ended survey questions attempting to capture researchers' informed opinion about the potential of the NWFP sector to contribute to forest conservation. Specifically, contacts were asked: "Do you feel that the development of the NWFP sector can contribute to the conservation of the forest ecosystem in the Congo River Basin?" The vast majority of responses were: "Yes, but....."

This mixed reaction reflects the respondents' approach to levels of development. Generally, respondents grouped NWFP according to their household or commercial use. The practices of collecting for household use was usually considered sustainable. In the past, however, products found to have commercial value have been harvested at an unforgiving rate, leading to steep local and possibly regional population declines. Examples of household use NWFP include bark, leaves, and other plant parts used in cooking. Additionally, locally consumed NWFP tend to be domesticated. Examples of commercial NWFP include *Gnetum africanum* and *Garcinia mannii*, both of whom have great market demand and whose natural populations have declined steeply in recent years. This decline is due in part to loss of forest habitat due to slash and burn agricultural techniques, as well as accelerated harvest of wild populations.

> * *Prunus africana* provides an excellent example of the scenario described above. In the past, *Prunus* bark was valued as a medicinal product by local peoples, and was harvested by removing strips from live trees; leaving the trees scarred but living. Once *Prunus'* medicinal properties became recognized by European pharmaceutical companies, and the market for the bark increased, bark harvest rates increased, to the point that whole trees were felled and their bark stripped, at rates greater than natural replacement could match. This has led to steep declines in natural populations. More than once the survey team heard the comment that people are aware of conservation concerns, but that first one must feed one's family, and that food security will usually precede conservation ideology. The Mount Cameroon Project, based in Limbe, works with a variety of NGOs to establish plantations, regulate bark harvest, and educate people about sustainable management practices for the species.

*A popular proposition to reducing the decline of wild NWFP populations, is that of domestication. Often, NWFP used at a household level have been brought into household gardens, or are collected at such small volumes that supply from wild populations is not an issue. *Dacryodes edulis* is an example of a wild species that has been effectively domesticated in Cameroon, and occurs widely in household compounds. The theory is that moving NWFP into agroforestry systems will reduce pressures on wild populations. This will increase the intensity of agricultural land use, and so theoretically reducing the amount of land needed to farm, further decreasing need to convert forest to farmland.

Irvingia and rattan species are popular current research foci; both are extremely popular locally and regionally, and both have potential for far greater market development, though neither has been domesticated in the region (though work on *Irvingia* domestication is currently underway). The harvest of *Irvingia* fruits and nuts, and of rattan canes is opportunistic, and vulnerable to open access excesses. In addition to work on domestication of *Irvingia*, improved harvesting techniques, processing, transformation, conservation, packaging and marketing of the seeds and fruit were also identified as areas needing attention. With respect to rattan, research in Cameroon has emphasized chain of production, transformation and marketing as value-added products. Recent research led by the Mount Cameroon Project and APFT has begun to assess wild populations and their capacity to withstand increased harvest levels.

Rattan, *Prunus*, and a few other species aside, the bulk of Cameroon's NWFP, of which there is a wide array, are not perceived by the individuals interviewed to have a great deal of commercial potential. The majority of NWFP have a small, but steady, market. For example, a woman may use a chip of bark as seasoning in a sauce; but she may only need a small handful of bark over the course of a season or year. The demand is constant and small, and will likely remain so, regardless of the availability of the product. Additionally, NWFP are no less vulnerable to demand swings than any other agricultural product. Cameroon and Gabon both suffered economic losses with the world-wide down turn in coffee, rubber, and cocoa demand in the 1980s; interest in medicinal plants by pharmaceutical companies is tantalizing, but local benefits from such interest tends to be ephemeral and unreliable.

In keeping with the pragmatic note, many contacts mentioned that farmers and policy makers alike are tired of research and theory, and are ready for practical, tangible results. If NWFP are to be developed, they will have to provide very real economic, dietary or medicinal value - and this preferably with a minimum of study and pilot projects. Additionally, while contacts in Cameroon do see NWFP as an economic alternative, part of a suite of options to be developed for the sustainable management of the forest; none of the interviewees expected NWFP sector development alone to solve the problems of forest ecosystem conservation.

A recurring theme in discussions with respondents was that researchers and policy-makers need to pay attention to why rural people make the land-use choices they do. Land tenure, resource use issues, institutional land policies, infrastructure development, introduction of cash economies and substitution products all affect how people perceive and use their (forest) environment.

Cameroon has a wide diversity of ethnic groups and demographic characteristics, which vary across spatial as well as social strata, and which will have an important impact on any effort at sector development. For example, the Western province is heavily forested and lightly populated (by humans). NWFP of all sorts, including bushmeat remain relatively plentiful. Attempts to change human behavior with respect to agricultural practices are likely to be difficult, as it is not evident to the local population that the status quo is worse than change. On the other hand, the Littoral province is much more heavily populated, and the attendant problems of deforestation, bushmeat depletion, and resource scarcity of all sorts, together with the vulnerability to a cash economy emphasize the value of certain NWFP. Convincing local populations of the need to change land use practices will likely be easier here than in the Western province.

Similarly, some ethnic groups have traditionally grouped themselves in hierarchies that make change agent contact and the introduction of innovations relatively straightforward. Others have almost no tradition of grouping beyond the family, making traditional development tools such as village meetings, cooperatives, and community planning efforts less useful.

Flexible and innovative ways of approaching the complex resource issues involved with the NWFP sector are likely to be the most rewarding. More than one researcher noted that it is impossible to pull NWFP out of the social, dietary, and economic traditional context of forest-dwelling populations, and still fully capture their significance and value**.** The value of NWFP most often are not captured by a simple market price. Other values including spiritual, ecological, nutritional and social aspects also play roles both important and difficult to easily quantify.

Several respondents mentioned that while the policies of Cameroon's forest code are moving in the right direction with respect to local control over community forests, policies covering NWFP are still vague and undefined. As certain products become more lucrative, no framework exists to guide rational management of that resource. Perhaps due in part to these product's diverse and economically under-represented nature, most administrative and technical personnel under-appreciate the NWFP sector's economic importance.

While people have the right to collect NWFP at a household level, in some cases they lack authority to market these resources (bushmeat for example). Access to that sort of tangible economic benefit might encourage villagers to actively manage their community forests for a variety of longer term benefits, including NWFP species.

Interviewees indicated a need for policy changes and education at several levels. Researchers and community development workers alike perceive a need to educate and alert rural populations and policy makers to the value both of intact forest systems, and of NWFP that occur in those systems. For example, many governmental administrators continue to encourage cacao plantations, when a bag of *Irvingia* nuts costs more than a comparable bag of cacao. State-administered logging concessions were seen as a monolithic source of deforestation, if less extensive as yet than that caused by slash and burn agricultural practices. Land tenure, both statutory and traditional, is an issue. In traditional Cameroonian cultures, clearing and planting

land confers ownership. Uncertainty about future land tenure leads to anticipatory clearing, as farmers clear both what they actually need, as well as strategically placed clearings that will ensure they have sufficient land in the future. Additional, detailed information on the NWFP sector in Cameroon is found in Appendix 1. Also, see Annex 4 in *Etude pour favoriser le developpement des produits forestiers non-ligneux dans le cadre du CARPE. Jan. 1996.*

B. Gabon Survey

• Current State of the Sector

Much less varied topographically than Cameroon, Gabon has far less arable land. Nearly 80 percent lies in forest and woodland. Exploitation of offshore oil reserves over the past 20 years have replaced the previous industries of timber and mining as the major sources of State revenue. However, oil reserves are dwindling, and the same instability in prices for oil, timber and mining that burdened Cameroon affect Gabon. Gabon is shielded somewhat by its small population; per capita income, however unevenly distributed throughout the population, is three times that of most other sub-Saharan nations. The government, however, is feeling the pinch of dwindling oil revenues and has increased the numbers of timber concessions across the country.

Gabon differs from Cameroon in that its public servants and rural dwellers appear to have less of a conservation mentality - not surprising, as there has not, prior to the last 20 years or so, been a great deal of stress placed on its forest systems. The human population density is low, and much of the nation's revenues have come in the form of profits from rich oil reserves off its coast. This situation is changing, for a variety of reasons; not least of which is the inevitable dwindling of the country's oil reserves, leading the State to diversify oil moneys with timber revenue generated by large scale leasing of logging concessions.

Over the past several years, as the effects of logging, the conversion of forest to agriculture, and increasing pressure on the forest's resources has become more apparent, a conservation ethic has begun to emerge. This is reflected in the number of individuals, some of whom the team interviewed, who are working in the area of the conservation and sustainable forest management. While alarm bells were not ringing for individual NWFP plant species in Gabon, considerable concern has been raised over the destruction of habitat, and comments from researchers, conservation workers, and others echo the concern of those in Cameroon with respect to overharvest and destructive harvest practices as well as illegal hunting of wild game species. In contrast to Cameroon, slash and burn agriculture is not perceived to be a major contributor to deforestation.

Most of the individuals directly addressing NWFP are botanists studying a specific plant species or group (*Irvingia*, Raffia palms, or orchids, for example), seeking to understand their biology and characteristics with an eye to domestication and introduction into agroforestry schemes. Others work with groups of plants; one interviewee uses his knowledge of chemical properties in

plant families to focus his research into medicinal plants. Bolstered with conversations with traditional healers among different Gabonese ethnic groups; his work has resulted in the isolation of effective plant compounds, and their incorporation into marketed products. Another, with an ornamental plant business, uses local forest species; but also has a consuming passion for orchids, and has developed an impressive collection of native orchids, which he cultivates. He works with botanists at Kew Gardens in England to identify species. One businessman, a wholesale coffee processor and exporter in Libreville, has a small nursery at his house, where he grows *Irvingia* seedlings, among other species, for distribution to small farmers from whom his company purchases. He encourages the farmers, mostly along the Cameroon road and in Cameroon to plant along the road for harvest in 5-10 years.

A review of specific initiatives underway in Gabon includes the following:

IRET-CENAREST is studying rattan, and wild edible or medicinal NWFP, beginning with *Aphrodisiae* plants and *Gnetum* leaves. Aside from identifying medicinal properties, they are interested in organizing and studying how to make the resources sustainably and readily available to the general population.

APFT has carried out a study of the chain of production for rattan, as well as research in raffia palms. Other interests have included game ranching, as well as other species marketed such as *Irvingia* and *Baillonella* (karite), as well as more formal work with land and resource tenure and access rights through adjustments to the Gabonese Forest code.

IRET has a group researching the domestication, primarily of *Irvingia* species, but generally of wild fruit species. Progress has been made in reducing time to fruition (down to 5 years versus 20-25 years in the wild) and incorporating the species into agroforestry systems, desirable in that the *Irvingia* tree is small and so does not compete overmuch for above ground light and surface moisture, and underground is a tap-rooting plant, and so does not compete for water and nutrients with most agricultural crops.

The French government-funded ForAFRI Project is primarily interested in NWFP that are immediately available to local people. Medicinals, for example, are of less interest to them, because they require considerable investment, research, and product development; and in the end most of the profit goes to pharmaceutical firms based in Europe or North America rather than in Africa.

The US Peace Corps' approach is to identify and build from what the farmers are currently working with. Current NWFP sector work includes efforts to commercialize lianas, vines, Okoume torches, as well as grubs, caterpillars and honey. The US Peace Corps plans to develop relationships so that agricultural produce, farmed fish, and possibly NWFP will have channels of production, transformation, and marketing.

JARDI-GAB deals with ornamental plants, both native and exotic to Gabon. A particular interest of the company is to inform and stimulate interest in the natural forests of Gabon,

through landscaping, photographs, and the development of displays; for example, a collection of medicinal plants found in Gabon to be displayed at the French Cultural Center.

PlantAfrica Cosmetics is interested in any plant possessing chemical/medicinal properties that might be developed for cosmetic or medicinal purposes. In addition, they are interested in making use of the industrial (post-harvest) waste material of the Okoume tree; its leaves, secondary branches and roots all have medicinal value.

JARDI-GAB and PlantAfrica Cosmetics both see forest conservation as part of their mission, though their focus as private businesses was on NWFP production and marketing.

ForAFRI, APFT, Peace Corps, ECOFAC and the World Bank-funded PFE are attempting to identify ways in which NWFP (and NTFP) use and management can fit within a larger context of sustainable forest management.

While interesting work is being done in Gabon, the sector lacks Cameroon's variety and intensity.

An impressive percentage of Gabon's food and products are imported, from North America and Europe, as well as from neighboring countries, particularly Cameroon. The agriculture sector is not well developed, and even fruits and vegetables that could be grown in Gabon are imported (initiatives to change this situation are underway, see for example the work of IGAD).

Additionally, nearly 80% of Gabon's population of just over one million lives in its urban centers. This leaves a relatively small rural population to do the work of agricultural production and may partly explain the focus of many of the interviewees on Gabon's population as a whole, as opposed to the either/or rural/urban split that shapes much of the work done in Cameroon. In any case, the target population identified by many of the researchers were the people of Gabon, rather than villagers or other researchers. In addition, many of the people interviewed work with the government of Gabon in one way or another to develop sustainable forest management practices.

Interviewees indicated the primary target audience for their research is the people of Gabon. however, information transfer occurs primarily via publication in scientific journals and internal government or organizational reports, and as such not widely distributed.

The integrated conservation development projects (most of whom are managed by international NGOs) focus more attention on dissemination of information to the general public via radio and television broadcasts, environmental education curriculum in primary and secondary schools, including posters, flip charts, comic books, skits, songs, and books.

• Can NWFP contribute to Forest Conservation in Gabon?

The big issues in Gabon are not the slash and burn agriculture and population growth cited in Cameroon. There is a general consensus that the rural people of Gabon are not creating conditions that would cause concern about the vigor of the forest ecosystem. Rather, the responses to our question concerning the sector's potential to contribute to forest conservation highlighted the growing concerns in Gabon over commercial logging and agriculture, and illegal hunting.

The increasing rate of government allocation of forest concessions to (usually) foreign logging companies is a frequently mentioned concern. Timber harvest rates and practices were described by individuals in both formal and informal discussions as being both unsustainable and wasteful.

Gabon's Forest code and statutes guiding land tenure and resource use are under revision. In real terms, code is often not respected in practice. In addition, frequently, villagers are not aware of how or where their traditional rights are covered under statutory law, and are not sufficiently well organized to demand enforcement of the rights that do provide for their use of the forests around their communities. On several occasions the assessment team was told that making villagers aware of the value of different products in their forests, and their rights to management of those resources, would result in their protecting the resource base themselves.

While the assessment team did not seek out people researching bushmeat issues, the subject came up frequently in formal and informal discussions. Responses to the question on NWFP and forest conservation were often prefaced with a comment to the effect that rural people's use of the forest for NWFP, including bushmeat, is not the problem. Rather, focus should be placed on urban dwellers' introduction of guns, ammunition, and refrigerated trucks to rural areas for bushmeat hunting for the urban market, which is having a dramatic impact on the forest. It was repeatedly stressed that these were the real problems, and not the rural villager hunting or harvesting for household consumption or local trade.

* While some people felt that commercial logging could be carried out in a sustainable manner, no one who spoke on the subject felt that commercial hunting is sustainable. Harvests are seen as impossible to regulate, with an insatiable demand for the meat both regionally and internationally.

The fear was expressed that sustainable use and exploitation of high-value NWFP may be mutually exclusive. As a NWFP gains market value, it often attracts outside attention, and products previously gathered opportunistically or as needed at low, sustainable levels, may become sought after and over-harvested, by locals or (more frequently) by government or city dwellers coming to the forest.

Pragmatically, it is not reasonable to consider NWFP as an economic match to logging. The NWFP sector needs to be set within the context of carefully applied forest management operations that include timber harvesting. Respondents felt that the government and logging

companies will only apply sustainable forest management practices once the resource base becomes limited, and that it is in their economic interest to do so. In a country that is 80% forested, it is understandably difficult to convince urban or rural populations of the urgency of concerns about forest conversion.

Logging firms operate to generate profit; they also operate within the country's Forest code. They might be encouraged to incorporate or take advantage of complementary NWFP activities, or lease use permits to local people. Desired species such as *Irvingia* or *Prunus*, could be left in logged concessions rather than pushed over as waste material, if logging firms were aware of their value, and were encouraged or required to do so by the Forest code.

- For example, Okoume (*Aucoumea klaineana*), the species that makes up a large portion of Gabon's forest, has immense value as a timber species. In addition its leaves, bark and secondary branches all have medicinal value. Its sap is valued as a material in torches produced and sold in Europe. While the profits to be generated by these additional products are infinitesimal in comparison to those of the timber, they are not insignificant, and certainly could have the advantage of providing income to a wide variety of people, rather than merely the coffers of the timber firm and the government. Additionally, harvest of the branches, leaves, and even sap, would not necessarily need to interfere with timber harvest, and could precede harvest activities with little disturbance to the concession.

A significant actor in the development of the NWFP sector (as well as the NTFP, when including charcoal and fuelwood consumption) is the urban market. As rural people move to the city in search of wage-paying employment, they take with them their tastes for NWFP. Additionally, as national economic hardships arise (as they have already in the case of Cameroon in the late 1980s), people are more likely to turn to traditional foods and medicines. Finally, as more and more Africans move to Europe and North America, they take with them taste for NWFP from home, and are willing to pay to have the products delivered. These factors, among others, contribute to a situation where it is the urban population that drives exploitation of forest systems.

Many NWFP have been used at sustainable levels for generations. Others have been domesticated and brought into agricultural systems. For example, *Dacryodes edulis* has been nearly domesticated in Cameroon simply as a result of people planting them in their compounds. For NWFP plant species that have not been domesticated, policies need to be developed and implemented to regulate NWFP harvest practices, and technologies developed to improve product harvest, transformation, and conservation.

* With some species, such as raffia, over-harvest of the wild resource is of less concern, as the canes grow back rapidly after harvest.

* Wild fruit species such as *Irvingia* are protected by farmers (though notably NOT valued or saved by logging firms); large scale marketing of the fruit is limited by conservation problems, as the fruit rots very quickly.

* Palm wine, a large industry, is made from sap tapped in a destructive manner. Currently production and international markets are limited by the fact that they have not yet figured out how to conserve it for longer than about three days.

Additional, detailed information on the NWFP sector in Gabon is found in Appendix 2. Also, see Annex 6 in *Etude pour favoriser le developpement des produits forestiers non-ligneux dans le cadre du CARPE. Jan. 1996.*

C. Republic of the Congo[1]

• Current State of the Sector

For the purposes of this section, the term "research" should be used broadly, meaning simply that individuals and/or organizations have shown some interest in NWFP. In some cases, the research has been quite informal, while in other circumstances a more developed structure involving hypothesis and testing are seen. Researcher's reasons for working with NWFP usually involve providing benefits to rural people and conserving natural resources.

High profile conservation projects in Congo include ECOFAC and GEF, but a conservation "mentality" does not seem particularly developed, and natural resource depletion continues largely unabated. Not surprisingly, attention to NWFP in Congo has been modest. Public awareness of environmental issues seems broad, however, perhaps because of the relatively high educational level of the population. Frequently cited concerns are the scale of commercial hunting and export logging, both of which are largely unmonitored for sustainability.

Most NWFP researchers in Congo are associated with international NGOs, which are linked at least in theory with local and national counterparts including NGOs, government agencies, and community groups. Multilateral agencies (e.g. UNDP, IFAD, WHO) and private sector companies including pharmaceutical and forestry firms, occasionally show interest in the subject of NWFP. Like their colleagues in Cameroon, researchers goals typically relate to environmental conservation and/or sustainable management of natural resources, and to providing an economic alternative to hunting or logging, or a vehicle for local production and thus economic development for rural populations.

Widespread illegal/commercial hunting is a widely discussed topic of discussion, and research, and additional survey work such as that conducted in Gabon by WWF, may be useful in establishing more fully the extent and scale of bushmeat commerce in Congo. Near Brazzaville, for example, wild populations have been severely depleted or destroyed. In areas where wildlife is still relatively abundant, local demand remains high, and additional demand from urban centers such as Pointe-Noire, Dolisie, and Brazzaville offers lucrative outlets for local hunters.

A second area of concern involves logging. In some areas, logging permits are renewed without a waiting period for regeneration. Logging company personnel report venturing further afield to satisfy company-defined quotas, and some say that parts of southern Congo have been "logged

[1]Due to the outbreak of fighting just prior to the arrival of the survey team, no interviews were conducted in Congo. The observations presented in this section reflect the knowledge and in-country experience of the author, who worked in Congo on a project designed to establish alternative economic activities in protected areas, including collection, processing and marketing NWFP. Because a great deal of reference material collected in 1996-1997 was abandoned when the author departed in June, the observations contained here are not necessarily complete, but rather more of a sampling based on exposure and recollection.

out" of commercially viable species, except near the Gabon border. Despite existing laws mandating replanting, enforcement is non-existent, and compliance is therefore questionable.

A third area of concern involves Congo's weak agricultural sector. Many of the fresh foods sold in Brazzaville are imported from Kinshasa. This reliance on imported goods may be due to lack of interest in cultivation by local populations, and poor transportation infrastructure from the interior to urban areas.

Congo's importance as a center of biodiversity is recognized internationally but doesn't seem to be particularly appreciated by local people, possibly because they lack printed, radio, and televised information. The World Bank's Global Environment Facility (GEF) project, for example, is intended to address issues of biodiversity conservation, but has not yet developed a national public awareness campaign. Reports prepared by various components of the project, such as technical assistance contractors (international NGOs, government agencies), generally are intended for project administrators and/or relatively limited academic or professional audiences. Also, many parts of the country's media infrastructure are non-functional. Due to broken transmitting stations, for example, national television and radio service is unavailable to large segments of the population, including large urban areas such as Dolisie or Pointe-Noire. Newspapers published in Brazzaville generally concentrate on political issues, rather than a broad range of topics which might include environmental issues and analysis.

NWFP research has concentrated more on the taxonomy, distribution, and traditional and modern anthropological applications of a broad range of useful (edible, medicinal, ornamental, timber) plants than on domestication or commercial analysis such as market analysis, chain of production, pricing, etc., although many sources cite significant household and commercial applications, particularly in furniture construction, mats, and baskets.

A review of specific initiatives underway in Congo includes the following:

> Alliance National pour la Nature (ANN): Local NGO has organized conferences and published articles on conservation issues, including NWFP.
>
> ECOFAC: Diverse programming including research from regional headquarters in Brazzaville, and technical assistance intervention in Odzala National Park (including hosting visiting researchers, tourists, etc.). The infrastructure and management of Odzala are better prepared than other protected areas to attract and support visitors, and local support seems to be relatively strong for integrated conservation and development activities. This may be in part because project-driven activities provide benefits to local populations through employment, demand for materials, etc. In this sense, tourism may be viewed as a NWFP even though it involves services rather than goods, per se.
>
> GEF/Micro Development Corps/Dimonika: MDC's technical assistance in the Dimonika Reserve focuses on the involvement of local population groups in natural resource management policies including the development of alternative sources of income,

especially through commercialization of NWFP. Related activities are to include supervision of studies and monitoring. MDC maintains a database of useful plants of Congo and Gabon; CERVE personnel including the director of the national herbarium have expressed interest in collaborating on publication of a guide to useful plants of the Congo Basin.

GEF/IUCN/Conkouati: Regional office in Brazzaville for administrative and technical support for the project sites including technical assistance programs in the Conkouati and Lac Tele reserves, as well as addressing broad issues through conferences, policy development, etc. Past activities have included research and publication of technical works on the conservation of forest ecosystems in Congo, the Odzala National Park, and the Conkouati Reserve. IUCN has also organized conferences such as one in the spring of 1996 on the future of central African ecosystems. The focus of IUCN's work on NWFP in Conkouati has been on strengthening the agricultural sector through technical and material support for gardens and small livestock programs. Additional work is planned on assessing potential for developing NWFP such as oils, nuts, honey, etc.

GEF & USAID/WCS/Nouabale-Ndoki: As perhaps the best known international conservation NGO operation in Congo, the Nouabale-Ndoki project has a variety of research relationships. In addition to inventory and monitoring of selected flora and fauna in collaboration with the University of Kyoto and the National Herbarium, research has focused on the needs and desires of local human populations including the Aka and B'aaka pygmies. Other activities under consideration or in development include safari hunting programs in adjacent areas.

GEF/MBG/CERVE (Centre d'Etudes sur les Ressources Vegetales): MBG provides technical support to the national herbarium, including developing a scientific protocol for botanical inventories, developing staff capacity to carry-out inventories, and develop vegetation maps. Past collaborations with ORSTOM have produced research on NWFP (e.g. by Profizi). MBG has drafted a pre-proposal (August 1996) for a botanical training program for central Africa which would include training for local collectors, field collectors, and research botanists.

GEF/CERGEC: GEF project funding is to help strengthen existing map database and vegetation maps, with the goal of providing the National Herbarium and reserves with the information needed to complete inventories in the field.

IITA: Agroforestry project concentrating on local management including mapping previously logged and replanted areas.

PEACE CORPS: Volunteers worked in water/sanitation and pisciculture programs. Although no direct program involvement with NWFP, many volunteers expressed interest in NWFP and a desire to learn. Some have done independent research on their own in establishing secondary projects. One volunteer, for example, helped local women process

peanuts to make cooking oil, and was interested in expanding that activity to include soapmaking with locally-sourced materials.

SHAMAN PHARMACEUTICALS: Collaborated with MDC and CERVE in 1994 on botanical collection mission for possible pharmaceuticals development. Worked with local populations and healers in the Dimonika Reserve, and also briefly in the Sibiti area with pygmies.

UNDP has provided a small amount of funding to a local NGO in Brazzaville for NWFP research and development concentrating on traditional medicinals.

PROJET MAYOMBE: Formerly funded through the Man and Biosphere Program of the UNDP/UNESCO. Produced numerous studies and reports, some examining NWFP potential, community interest in development, current forest use, etc.

As seen in other countries, there is typically little effort at collaboration or data sharing despite the related operations and in some cases close proximity of project sites. This is even more surprising, perhaps, given the almost universal presence of government counterparts, often from the Ministry of Eaux et Forets, as well as frequent contact with peers.

Research results directed at regional and international scientific and technical communities, national authorities, home country administrators and funding agencies are generally in report form, with conferences and seminars held frequently in Brazzaville and Pointe-Noire. Short-term professional training sessions appear to be less frequent in Congo than in other countries, although nearly every project mentioned above can claim that ongoing training programs exist for all personnel. No information is available on specific subject areas covered in actual training programs or whether NWFP are included in the subject matter.

A few projects including ECOFAC and Projet Nouabale-Ndoki have produced attractive brochures and newsletters. For the most part, distribution of these forms has been limited to the immediate project area and the capital. Dissemination of information by radio and television broadcasts and curriculum development in schools appears to be far below levels observed in Cameroon and Gabon. ECOFAC and Projet Nouabale-Ndoki (WCS) have each produced posters which are widely distributed in the country.

At the village level, information is often conveyed orally at village meetings by project staff and government functionaries. Although may be the most appropriate method for a variety of reasons, not the least of which is cost, it leaves much to be desired in terms of the local communities' ability to retrieve, review and reflect on information. This method also is vulnerable to the transmission of unrealistic and inappropriate information, such as promises about fixing a particular village problem. As a result, it is not surprising that researchers report frequent misinterpretation of project goals and difficulty in building consensus based on mutual understanding.

The Congolese population does not exhibit the activism noted of the Cameroonian population, at least in terms of natural resources management issues. This may reflect the highly centralized administrative structure, or discouragement about affecting real change or improvements in a country which has undergone numerous political upheavals over the past thirty years. Villagers do not generally feel "empowered." Many ministry staff seem to view rural populations as incidental players, while the villagers themselves voice mistrust about government officials.

• Can NWFP contribute to Forest Conservation in Congo?

If informed individuals were asked about the potential of the NWFP sector to contribute to forest conservation (e.g. "Do you feel that the development of the NWFP sector can contribute to the conservation of the forest ecosystem in the Congo River Basin?"), it is possible that the responses would be conditional, as in Cameroon and Gabon, where the reply was often, "Yes, but...."

All of the reasons cited for Cameroon and Gabon concerning the perception of household use (sustainable) vs. commercial use (potentially unsustainable) apply for Congo. The danger of overharvest and subsequent damage to wild populations should not be underestimated.

In addition, it is possible that Congo observers' comments would reflect ambivalence about external factors and potential constraints. Some might be socio-cultural and others could involve the crumbling (and now perhaps non-existent) infrastructure and related lack of available goods and services. This could be particularly relevant in establishing pilot programs. One can imagine, for example, hearing the following: "Yes, but how would the goods be bought and sold at the local level.... how would they be transported at reasonable cost to market.... what sources exist for financing investment in value-added services.... what role would the government play in setting restrictions, standards, etc.... " Behind such questions is the assumption that trading and management standards and practices in Congo are not as fully developed, reliable, or predictable as in other countries.

Approximately two-thirds of Congo's population lives in the southern part of the country, including Brazzaville and Pointe-Noire, and in towns between them along the railroad and national highway. It contains both forest and savanna. Although not as ethnically diverse as some neighboring countries, geographic boundaries (e.g. north, south and Brazzaville/Pool areas) reflect important social/political distinctions, as seen most recently in the civil war which began in June 1997. It is unclear whether the population of a particular region would be more receptive than another to the introduction of NWFP research and development programs. Although there is probably greater concern in the south than the north about natural resources depletion, it is uncertain that convincing local populations of the need to change land use practices will be easier since agricultural practices are deeply rooted. However, with the larger population between Brazzaville and Pointe-Noire, it will certainly be more efficient and economical to concentrate initial conservation education and marketing trials there.

Practically speaking, the existence or non-existence of NWFP language within the Congolese

Forest code is irrelevant in the absence of local populations' awareness and respect for sound natural resource management practices. Villagers may know, for example, that there are limits on the quantity of game that can be taken, or that clearing and planting on a steep slope will eventually cause significant erosion, but they usually prefer the action which offers the greatest, and most immediate benefit.

* For example, a village dweller queried about the potential for harvesting honey without harming the tree in which a hive was located assured the researcher that the honey could be safety and conveniently extracted with no damage to the tree. Later, he escorted the researcher to the site, where he felled a twenty meter tree to access a hive near the top. Having left most of the trunk and limbs intact, the villager reasoned that there was no damage to the tree, which might be used for firewood.

* In a second example, hunters, who may be aware of established policies regulating hunting, but reason that their families must eat, are unlikely to respect a regulation which seems absurd in the reality of life in the forest. It is therefore vital that administrative and technical personnel understand rural dwellers priorities when designing a framework for effective NWFP policies. If they don't, then rational, sustainable management practices will not emerge.

As suggested earlier, people generally have the right to collect NWFP at a household level, while in some cases they lack authority to market these resources. In some cases, they may lack the means to market other NWFP resources, either because they don't have access to markets (lack of transport, distance to market) or access to equipment for processing, storage and adding value. Just as permission to openly manage commercial hunting might encourage effective management, it is possible that the introduction of basic means of production might encourage tangible economic benefit, stimulating more sustainable community management of forests and NWFP.

There is general agreement by researchers that policy change and education is needed throughout Congo, from rural dwellers to mid-level ministry officials to high-level policy makers. Most researchers would agree that Congolese at all levels are receptive to hands-on practical training, exhibits and conferences, and mass media public awareness campaigns.

D. Equatorial Guinea

• Current State of the NWFP Sector[2]

Equatorial Guinea is unique among the countries that fall into the influence of the CARPE programme. Not only is it the only Hispano-phone country on the continent, but it is composed of three very different and disparate territories. The island of Bioko (formerly Fernando Po) lies of the coast of Cameroon and is dominated by volcanic highlands and montane forest, Rio Muni, the mainland territory is heavily forested and sandwiched between Cameroon, Gabon and the Congo, and the island of Annobon (formerly Pagalu) which is situated some 340km off the coast of Gabon and is the last island in the volcanic chain that includes the Cameroon highlands, Sao Tome and Principe and Bioko.

Until relatively recently Equatorial Guinea has been in a dire economic situation, the result of the rapid withdrawal of colonial paternalism and many years of ruthless military dictatorship. The country sees the exploitation of its natural resources as the panacea to its financial problems. However, this exploitation has been undertaken in a situation in which there were no guidelines in place for environmental protection or for the rational use of resources, and considerable damage to the forests and wildlife has occurred. Until the recent discovery and subsequent production of oil, the economy was based solely on agriculture, forestry and, to a lesser extent, fisheries. In 1994, exports consisted solely of cocoa, coffee and timber, with the exploitation of the latter in particular increasing exponentially in recent years. The impact of this on the environment has been enormous, not just because of the exigencies of the macroeconomy, but also because the population was forced to rely on forest products, namely bushmeat, and their own poorly developed agricultural systems in order to survive.

Recognising the value of the sum of its parts, IUCN (1986) stated that the biological diversity of the country as a whole is relatively rich, with high levels of endemism on Bioko and Annobon in particular. A large proportion of the country is still covered with forest but, as a reflection of the high levels of agricultural and logging activity, much of this is secondary forest. The majority of the remaining forest, notably in Rio Muni, is currently under concession and some areas have undergone numerous successive harvesting, notably for *okoumé* (Aucoumea klaineana). A network of protected areas was identified by the Spanish prior to independence through Ministerial decrees and then were promulgated by the 1988 wildlife and protected areas legislation (Ley 8/1988). These nine zones cover around 8% of the national territory. However, many of these reserves remain simply lines on a map and, with the exception of Mont Alén

2 This section presents findings and observations from both Bioko and Rio Muni, augmented by informal interviews and available literature. As for the section on the Congo, no formal interviews were undertaken to complete this section using a questionnaire. No data has been collected or is available from Annobon, which is at present, isolated from the rest of the country. There have been no natural resource studies undertaken there for over thirty years, although this lack of information from the island is to be addressed by an expedition there later this year by CUREF (see below).

National Park in Rio Muni, lack any substantial protection. In fact, some of these protected areas, in whole or in part, have since been included in a number of forestry concessions.

Again, in contrast to its neighbours, Equatorial Guinea's legal and institutional framework for conservation are still in their incipient stages. Two ordinances now exist that relate to natural resources; the Forestry Law of 1995 and the Wildlife and Protected Areas legislation of 1988, but these are concerned, in the main, with commercial forestry activities and wildlife protection rather than the protection of forest resources *per se*.

The *Dirección General de Bosques* at Malabo, through its *Ministerio de Agricultura, Ganadería, Pesca y Forestal*, is the ultimate authority responsible for the administration of natural resources in Equatorial Guinea. Its representative office in Bata, Rio Muni, guides all action pertaining to forest exploitation and conservation. However, in 1994 the entire *Dirección General* had only 35 persons working in the section, of which only five had even undergraduate, or equivalent level training. This lack of capacity to implement forestry legislation has undoubtedly severely hindered the conservation activities of the few donors and groups that operate in the country.

NWFP's in particular have not played a significant role in either local or export markets. In fact, the NWFP sector in the country seems to be highly underdeveloped and general forest use, outside of subsistence hunting, agriculture and logging, seems to be limited in extent. Perhaps as a reflection of this, the research and promotion of the NWFP sector has not been widely-practised and the few conservation and development agencies working in Equatorial Guinea have generally concentrated on other natural resource studies, notably fauna and the impacts of hunting.

A review of specific initiatives underway in Equatorial Guinea include the following:

> ***Co-operación Español*** (The Spanish Technical Co-operation Agency) launched a ten-year programme in 1985 called the Research and Nature Conservation Programme in Equatorial Guinea. The Programme's main objectives were to (i) increase scientific research; (ii) establish a Museum of Natural History; (iii) update environmental legislation; create a network of protected areas; (v) promote EG's participation in international forums on the environment; (vi) train local personnel and; (vii) implement environmental education programmes. However, much of the research undertaken was based in Bioko only and concentrated on faunal studies, particularly vertebrates. Some ethnographic studies of the Bubi's of Bioko were also undertaken especially on subsistence hunting and medicinal plant use. It is unfortunate that the Museum of Natural History was never established, which would have been a focus for local participation, although some forestry staff did undertaken study in Spain. Because of this initiative, some collaborative research programmes developed and other donors have now begun to work in EG in their own right.
>
> The **European Union** included Equatorial Guinea in its ECOFAC (Central African Forest Ecosystems) project which covers seven countries. Mont Alén was selected as the demonstration project area (set up by the 1988 legislation), but work did not begin on the ground until 1992. Extensive biodiversity surveys have been undertaken at Mont Alén

and the Park is protected by trained foresters and guards. Attempts have been made to encourage ecotourism through the building of a hotel, situated in a remarkable setting. In addition ECOFAC have established an artisan workshop at Mont Alén which produces high quality rattan and bamboo furniture which is mainly sold to predominantly ex-patriot customers in Bata. This workshop is extremely successful and the material produced certainly has export potential. However, ECOFAC have not undertaken any study of NWFP's, not even the rattan resource, nor do they intend to in the near future.

Another European Union project is based in Bata and is concerned with the conservation and rational use of EG's ecosystems, particularly on the mainland. The **CUREF** project (*Conservación y Utilización Racional de los Ecosistemas Forestales de Guinea Ecuatorial*) has undertaken considerable study of the land usage of Rio Muni and produced a definitive land use map for the region. They have also commissioned some biological surveys, in collaboration with Professor Lejoly of the University of Brussels. CUREF have recently established a National Herbarium in Bata and are currently trying to foster relationships and develop interest in this project from large institutions such as the Wageningen Agricultural University, the Royal Botanic Gardens, Kew and Missouri Botanic Garden. They are now beginning to commission some preliminary studies into NWFP's and local use of forest resources. Some initial studies on the latter have been undertaken by APFT.

There are no other projects or NGO's known to be operating in the natural resource sector in Equatorial Guinea, either local or international.

As can be seen, the NWFP sector is not widely studied or promoted, probably reflecting an unusual pattern of trade and marketing of forest products locally. Although many high value NWFP's occur in Equatorial Guinea, local people rarely harvest them and the majority of forest products currently sold in the urban markets are imported from Cameroon. It must be confidently assumed that, if they are not harvested locally, many of these products are not threatened in Equatorial Guinea. Anecdotal evidence gathered from local people has confirmed this is the case for most species.

There is one exception to this general rule. *Prunus africana* is being exploited on Bioko in quantities large enough to cause some concern. The montane forests of the north of the island have been exploited and harvesting is now moving southwards. At present, over 200 tonnes / annum are being exploited. Local people are harvesting the bark and supplying a Spanish company, Euromed who are, in turn, a branch of a German company, Madaus.

In addition to the NWFP's sold locally, many of Equatorial Guinea's foodstuffs and other products are also imported, again, mostly from Cameroon. The majority of the population are rural-based and rely on itinerant agriculture supplemented by the hunting of a variety of animals and / or fish, near to the coast and rivers. This exploitation model is based on the family and its manual labour and relies on short-term shifting cultivation and incomplete forest removal,

coupled with long fallow periods. However, in more populated areas such as the Littoral Province in Rio Muni and much of Bioko, this system has broken down with farm size increasing and fallow periods correspondingly decreasing leading to more permanent forest destruction.

The general weakness of the agricultural sector was responsible for cases of widespread malnutrition widely reported by Amnesty International and other humanitarian agencies during the period immediately after independence when the country was essentially isolated from the outside world by the regime of Macias Nguema. The sector remains weak and essentially means that many fruits and vegetables that could be cultivated are in fact imported. Unlike in neighbouring Gabon and the Congo, there are currently no known initiatives to improve this situation and widen the agricultural base.

The situation regarding medicinal plants is slightly different. Traditional medicine provides the majority of primary health care in the country and this was especially so during the period immediately after independence. It would seem that unlike other NWFP's, local knowledge of medicinal plants has perpetuated and remains steadfast. Equatorial Guinea recently established a National Programme of Traditional Medicine for the enhancement of traditional medicine and pharmacopoeia whose stated aims are to affirm the socio-cultural identity of the Fang and Bubi in particular, and the provision of accessible health care to the mass population.

Although the conservation projects operating in Equatorial Guinea are relatively high profile, the general poor education of the population and lack of a suitable forum for the dissemination of environmental education mean that a more enlightened approach to forest exploitation, or general conservation ethic, does not seem to exist. This is undoubtedly compounded by the low population densities; many local people say they do not experience the same problems of over-exploitation as in neighbouring countries and, aside from logging and itinerant agriculture, the impacts of local exploitation on natural resources are perceived as minimal.

- **Can NWFP's contribute to Forest Conservation in Equatorial Guinea?**

In general terms, the major threats to forest conservation in Equatorial Guinea are due to timber exploitation, concentrated itinerant agriculture and uncontrolled hunting. Commercial logging is a particular problem as it is set to increase considerably in the next few years as more recently-allocated concessions are worked.

The promotion and development of the oil industry, which is becoming increasingly important, was thought by many conservation agencies as providing the economic advantage to mitigate the exploitation of forest resources as it had done in Gabon during the early days of the oil industry there. However, this does not look to be the case in Equatorial Guinea and the forestry resource is still under considerable threat. Accordingly, whilst there is an anticipated "trickle down" of the not inconsiderable oil revenues to the general public, as it were, the reality will probably be that many remain considerably depauperate, although slightly better off than when Equatorial Guinea

was named the world's fourth poorest country in 1982. Hence the rural resource sector is still considered by many to need significant development to raise household income levels.

Although NWFP's are not heavily exploited in Equatorial Guinea, they are used extensively by both the local people as well as the many migrants in the country. As the country has opened up in the past few years, both politically and physically, there has been a dramatic increase in the NWFP's being available in the major urban markets. However, this trade has relied upon the entrepreneurial skills of Cameroonians who export large quantities of widely-used NWFP's, such as Irvingia gabonensis and Ricinodendron heudelotii to Equatorial Guinea, via the border town of Ebebiyin, where they are bought and transported by Equato-Guinean traders, predominantly women.

It has been mooted that many Equato-Guineans have lost much of the basic knowledge of how to use the forest effectively, aside from hunting and subsistence agriculture. Early studies indicate a wide range of forest products were used as part of indigenous subsistence strategies yet contemporary studies indicate this to the otherwise today. It is stated that the mass migrations of the Macias era led to massive rural depopulation for at least a decade. The generation remaining, often the older people with the long-acquired knowledge of the forest, passed on and, when a more favourable political climate developed, the migrants returned often having grown up in urban squalor in cities such as Douala and Libreville, ignorant of the knowledge of how to use the forest effectively. It is only now, with the influence of many outsiders, that the demand for NWFP's has influenced both rural and urban Equato-Guineans to become more inextricably interlinked with these resources and to think of the forest as a source of foreest products other than timber or bushmeat.

It has to be said that, in certain significant senses, the NWFP sector is so undeveloped in Equatorial Guinea that it could in fact potentially provide far more in the way of tangible benefits than in other neighbouring countries; in many respects a "blank page". In Cameroon, for example, the long-established patterns of exploitation of forest resources is often characterised by illegal harvesting and over-exploitation, coupled with the inequitable sharing of benefits, notably for local people. However, the case of Equatorial Guinea could provide a unique template for the development of the sector in a meaningful way through the incorporation of NWFP's into land use systems that combine timber and non-timber economic activities, whilst ensuring that the benefits of the development of the sector are concentrated at the household level.

The constraints to this are obvious; there is currently no legislation that deals with the harvesting of non-wood forest products; the forestry department is massively under-staffed and does not have the capacity to draft management plans that combine timber and non-timber product harvesting; there is a paucity of ecological baseline information for all of the major potentially (and actual) valuable NWFP species; and there is certainly no capacity for the development of domestication of desired species for incorporation into agroforestry systems for the increase of farmers revenues and diversification. It could be argued that any intervention that addresses these issues would make a significant difference to the development of the sector as a whole and could contribute to a number of conservation oriented objectives. Without doubt, Equatorial Guinea's

forests have the potential to provide significant revenues on all levels and to a wide range of beneficiaries; however the biological and cultural knowledge and human capacity to do so sensitively and sustainably are currently lacking.

E. Europe

En route to Africa, Ms. Clark visited the Universite Libre de Bruxelles (ULB) in Belgium, to meet with personnel of Future of Tropical Forest Peoples (APFT). Several APFT staff are involved in NWFP related work. A specific interest of APFT is the urban-rural interface in terms of use of the forest ecosystem.

Another aspect of APFT's work addresses the psychological side to development work in general, and could easily be applied to the NWFP sector in particular. A research psychologist at ULB, Dr. Anne Delorme, studies in the Central African region; her work in two areas is pertinent. The first addresses the relationships between the different groups in the forest zone (forest dwellers, city-dwellers of forest zones, government representatives, and project workers from development NGOs), and how that affects their relations to the forest. The second, sensibilization, is addressed at decision-makers, to make them aware of the necessity to integrate the ethno-ecological and psychological data from APFT programs in the conceptualization and application of their projects in development.

Integrating ethno-ecological and psychological information into understanding why people or groups make the decisions they do, in the end is the most efficient action plan. In the humid forest zone of Cameroon, oil palm harvest practices have shifted as a function of scarcity and proximity to urban areas. In Congo, in the Conkouati area, oil palms have been essentially eradicated. In both Cameroon and Congo, a generational difference was noted, with young farmers electing to capture short-term gain through felling their palms, rather than carrying that resource forward through non-destructive tapping. Economic, educational, and cultural grouping factors all build to form an idea of what is a rational husbandry of resources. If groups want to change practices in any serious way, the particular motivations of the groups and individuals they are working with need to be carefully considered. Especially in this area, with its many ethnic groups, cultural differences, educational and religious backgrounds, broadly based, cookie-cutter solutions will not in the end, be a long-term answer to the problem.

Returning from Africa, Ms. Clark stopped at the Food and Agriculture Organization (FAO) of the United Nations in Rome, Italy. FAO has a strong and active interest in the development globally of the NWFP sector. One of FAO's specific interests is to develop mechanisms to assess NWFP to more accurately reflect their value within forest systems. Currently, very few reliable statistics are available on NWFP, and their value is masked in assessments of forest value, while timber values are very well represented.

During and following completion of the field survey, it became clear that a number of NWFP-related master's theses and doctoral dissertations have been completed by students from European Universities. While some of these documents were included in the survey, in both Cameroon and Gabon, many others were not. The data represented is likely to be useful, and an effort is being made to obtain copies.

Suggestions of Actions to Strengthen the Sector:

Considerable international interest is focused on the well-being of the Central African forests. As well, increasing interest exists within the region to contribute to the conservation of these forests' unique biodiversity. A range of social, economic, and environmental concerns contribute to an increasing threat to the integrity and resilience of the Central African humid tropical rainforest, addressed in this report as the Congo River Basin. Non-wood forest products, present in the daily lives and informal economies of Central Africans, have been identified as possible alternate sources of income, or tools to be used in building sustainable management models for the region's forests. Some of these products may combine sufficiently high value with a demand for labor, that would reduce labor available for other, more destructive activities. Encouraging the development of a more formal economy for NWFP would legitimize harvest and trade, and build quantifiable data to be used in demonstrating the economic values of NWFP. Increasing recognition of the sector among government officials, NGOs, and development workers is needed; a series of pilot activities would achieve both that end, and also benefit NWFP producers.

Any pilot activities made in the sector need to have tangible and immediate/short term benefits. Interviews with local and international experts in the NWFP sector have highlighted several areas where steps can be taken to both develop the economic viability of the sector, as well as to encourage an ecologically sustainable exploitation of the plants providing the NWFP.

Economic conditions are difficult for most people in the region; they will generally act pragmatically, making choices to earn money or feed their families, rather than idealistically, if the latter does not benefit them materially. It is logical, then, to pay attention to villager/farmer-identified NWFP species or products to begin with, in any of the activity areas that follow.

Research is needed in identifying economically and environmentally promising species (source and market feasibility studies), developing sound management practices (individual or small group vs. community or cooperative administration; cultivation, harvest, and domestication practices), designing and distributing appropriate technology for processing and storing NWFPs, and conveying information to populations with varying levels of intellectual sophistication.

Domestication/Cultivation

* **Domestication of genetic material**
  Seen as a necessary step by most researchers, there is nevertheless a paucity of financial support in this area. The identification of desired or vulnerable species, the harvest of a variety of genetic reproductive material, its cultivation, improvement for desired attributes, and distribution for production within a farming system, is a series of steps referred to as domestication. This introduction of a species into the farming system both ensures that a farmer will have the desired product, and lessens the sometimes ruinous pressure on wild populations of the plant.

* **Introduction of sustainable harvest techniques**
  Often, harvesting techniques are developed under conditions of a plentiful resource-base. These techniques may not be sustainable under increased pressure on a diminishing resource. Or, it may be that previously sustainable harvesting techniques change as a product gains economic value, and interest in short-term economic gain overwhelms any thought of husbanding the resource base. In any case, development, introduction, and encouragement of sustainable harvest techniques of assorted NWFP is needed.

* **Development and introduction of appropriate processing technologies**
  Very often, much of the value of a product is lost, or much of a harvest is lost, because of the lack of harvesting/processing/transformation/preservation/packaging technology. A tremendous amount of labor is put into harvesting NWFP; for many of the fruits and leaves, any attempt to transport that product to market results in considerable loss of product through spoiling or damage to the product. A first necessary step is the identification of bottlenecks in the chain of production, or areas that would most benefit from the introduction of technology or improved techniques, A second step would be the development and introduction of appropriate and needed technologies. A third step would be a systematic training and apprenticeship programs to set that technology firmly within the social system of its users, and not dependent on outside resources.

Technical/research issues

* **Baseline information**
  Aside from the monumental task of attempting to learn enough to begin to understand the complex web of relationships that defines the humid tropical rainforest, several steps need to be taken, and soon, with respect to NWFP. Baseline information needs to be gathered, and both local and regional databases established, of commercially important, and habitat-sensitive NWFP. Additionally, because of the extremely high level of species diversity, in a relatively small geographic space, baseline information needs to be targeted on regional and sub-regional ecosystems under threat of conversion or fragmentation. The high degree, especially in Cameroon, of endemism indicates that for some species, a specialized

ecosystem may be unique to a single watershed or area.

* **Establish long-term maintenance of regional NWFP database**
  Just as important as the process of collecting and assembling data, however, is careful consideration of long-term maintenance of the suggested regional NWFP database. NWFP values will shift over time, and quantifiable trends and forecasts will offer even greater value to the conservation community than a baseline snapshot.

* **Economically quantifiable NWFP values**
  From an economic point of view, a reasonable way to assess and quantify NWFP values for a given forest needs to be developed for this region. To build a convincing economic case, the conservation community needs to be able to assess the degree and nature of NWFP importance, and introduce actual and potential values of NWFP as social, economic, and environmental resources into models of different sustainable forest management schemes. Once forest managers are able to quantify NWFP values, they will be able to include them in considering options for their forest; for example, in comparison to timber benefits. Until then, NWFP remain essentially invisible, as most decisions are made based on quantitative data, widely available for most timber species.

Policy/tenure issues

* **Recognition of NWFP in Forest code**
  Primary among policy issues needing to be addressed is the formalization of NWFP within State Forest code. In Cameroon, under their Community Forestry legislation, there is room for NWFP, but it is not specifically addressed. Though Gabon is revising its Forest code, it too does not contain explicit NWFP language. Until NWFP are recognized under the Forest code, they remain in an unclear area with respect to any consistent regulation, either of their harvest, marketing, or international trade.

  On a larger scale, it makes little sense to create guidelines and monitoring legislation in one country or administrative area, and have that not matched in adjoining areas. Species do not know geographic boundaries. Failure to match, or at least develop enforcement agreements, between nations, encourages smuggling, bribery and a host of activities that at the very least, do not encourage a sustainable NWFP sector, either economically or ecologically

* **Development and Implementation of NWFP Management Guidelines**
  With respect to all forest products, policies that exist need to be applied consistently on the ground. Both countries have good forest management guidelines, existing in law, that often are not implemented. For NWFP, inclusion in Forest code must contain policies developed to regulate NWFP harvest practices, with monitoring checks and incentives built in to the statutes.

  The primary commercial need to have strict harvesting guidelines, that if applied, both

provide the NWFP in marketable quantities and quality, and also ensure the yield does not exceed that which a given population of that species can support. Networks of suppliers, buyers, brokers, and sellers could be encouraged and monitored to enable citizens to find benefit in carefully managing their NWFP resources.

* **Investigate possible agreements to benefit both timber and NWFP concerns**
A large area of potential collaboration exists in timber concessions. Currently, logging agreements amount to a (relatively) short-term lease on the forest within a given area to a company. Generally, the company is primarily interested in the tree species of commercial value within that forest. However, in the harvest process, there are often a host of other species damaged or destroyed, species that may have value as NWFP. It is possible that commercial production of some NWFP could be found profitably within the management activities of a logging lease. Attention should be given to investigating ways in which contracts and permits could be encouraged to benefit both the companies, and NWFP producers.

* **Clarify Land Tenure and Usufruct Issues**
From the point of view of NWFP producers and other rural inhabitants, a number of land tenure and usufruct issues need to be settled. Conflicts between customary and statutory law with respect to land and resource ownership need to be clarified, and administered consistently. In general, if a person believes they have and will continue to have, rights to manage and benefit from a finite amount of land, (s)he will tend to manage the resources of that land rationally, which often means sustainably.

Currently, villagers are often unaware of their rights under statutory law, and unclear about which customary laws still hold, and under what circumstances. Inconsistent regulations, such as those which permit a village to use its traditional forests for subsistence-level food (a.k.a. NWFP) and medicines, yet denies the village the right to harvest the timber, or commercially harvest certain NWFP, can lead to confusion and the sort of uncertainty leading to resource mining rather than management.

Education and Consciousness-raising

* **In primary, secondary, university and technical schools**
The introduction of formal teaching modules about the important role played in the environmental health of the region by the forest ecosystem in general, should also include a section on the diverse roles played by NWFP. Not merely an economic entity, many NWFP have important medicinal, nutritional, spiritual and social attributes. From primary schools on up through university programs, progressive and relevant information needs to be passed to the students.

At technical and professional levels within specific university disciplines such as forestry, agriculture, and other natural-resource based fields, modules need to be developed that incorporate NWFP as part of a suite of options available to land managers.

* **Training of administrators and policy makers**
Administrative and policy makers need to learn about the natural systems so important to the economies and peoples of the region. NWFP as an economic alternative need to be in these decision-maker's minds as they design and implement legislation affecting people and the forests in which they live.

* **Stakeholders and interest groups**
Farmers, forest dwellers, and natural-resource users such as logging firms all have a stake in the development of the NWFP sector. Many opportunities for development of the sector lie in collaboration and cooperation within these groups, and each need to be: first, made aware of the opportunities; second, brought into communication with each other; and thirdly, facilitated in any efforts they make to develop formal agreements of cooperation. Each needs to see that, realistically, the conservation of the natural resources they all need, depends on cooperation and alternative land uses. It is especially important at the local level to provide

rural populations with intellectual and material tools to feel empowered and capable, and to stimulate a sense of initiative.

Capacity building

* **Support and assistance to NGOs and other local organizations**
  All manner of entrepreneurial skills need to be added to those already present in the merchants of NWFP. Training in the identification of potential markets, the development of cost/benefit and needs assessments, in the packaging and marketing of value-added products, in the bookkeeping and accounting skills, how to access information about retail and trade possibilities, are all needed. Additionally, practical training in rudimentary technical skills such as weighing, sorting, storage of the products prior to transformation is needed. These skills could be provided through existing and developing NGOs and other locally-based organizations.

  Much of this report addresses socio-economic and ecological aspects of addressing the NWFP sector and its possible contribution to conserving the forest ecosystems of the Congo River Basin. Where appropriate, assistance could be provided to NGOs searching to report and build public awareness of threats to various flora and fauna, as well as their habitat, within the Basin. This could include documenting and publicizing petroleum spills, logging companies and their final products, etc. It might name companies, products, locations, as well as the local decisionmakers responsible for regulation (or non-regulation which allow such problems to exist and proliferate).

Networks/Communication Issues/Information Transfer

The means for communicating the body of information to the wide array of audiences needing to hear about the natural environment in general, and the NWFP sector in particular, is at present extremely limited. Most of the information gained by government, university, and conservation workers, is funneled via internal reports and documents, back to the parent organization.

Information transfer to villagers and NWFP users is achieved chiefly, and sporadically, through village meetings. At a technical and administrative level, increased collaboration and coordination with respect to data sharing opportunities, training for project personnel would facilitate information transfer among workers within the NWFP sector. Generally, there is room and opportunity for vast improvement.

* **Develop networks for communication and information exchange**
  Within the NWFP community, of researchers, development workers, government officials, and producers, communication networks need to be encouraged and supported. These need to exist on several levels; local, national, and regional. The survey process has revealed very little communication between even administrators within the community, and still less

between field professionals and technicians. A tremendous amount of resources and effort is being put into helping people live sustainably within the forest system; failing to benefit from other's successes, failures, and information exchange is simply wasteful. Many of those surveyed expressed interest in communication networks for a variety of purposes.

The document, *Etude pour favoriser le developpement des produits forestiers non-ligneux dans le cadre du CARPE. Jan. 1996* highlights several sorts of networks that could be developed, some of which were also identified during the present survey. They include networks addressing:

* marketing
* training
* GIS
* technology development
* sectoral specialties
* financial opportunities

within the NWFP sector. Still to be determined are the best means of achieving communication. Computer networks via email are one popular but limited means, as very few people in the NWFP sector will have access to them. Identification and support (possibly through capacity building activities) of local NGOs to serve as information repositories and purveyors is a possibility as well.

* **Develop and disseminate an array of attractive, accessible educational media**
Technical reports and internal documents are the beginning steps in information transfer, but they don't begin to address the needs of informing and educating the majority of the audience needing to be addressed. Creative, attractive, interesting, relevant presentations could be developed and disseminated via schools, religious and community organizations, government offices, development project workers, and other entries into different social groups. Care needs to be taken to make the presentations accessible and reasonable. Few people will take the time to sit and read several pages of text; the same information could be presented in one or a series of colorful, illustrated, bulleted pamphlets. Other ideas include: writing and art contests, distribution of coloring books, postcards, posters, flip charts, comic books, performances including skits, songs, guidebooks to local flora and fauna.

* **Establish a NWFP library with Africa-friendly means of retrieving information**
This could include on-line services (including a Web page) as well as distribution programs (e.g. sending copies of articles and documents) which would be particularly valuable for researchers and project personnel in the Congo Basin region who are generally unable to access any bibliographic information on NWFP, and who therefore risk duplicating instead of building on previous research.

* **Organize a Forum to Identify, Prioritize, and Initiate Actions in the NWFP sector**
This listing provides several areas in which to address initial steps in the normalization of the

NWFP sector. Within each of the nations of the Central African region, as well as between nations, many opportunities exist in each area. Deciding on what specific actions to take, identifying which ones are already begun in some areas, or by some projects, which ones need to be addressed, how to address them, are all things that the NWFP community needs to address.

Because communication is practically non-existent between many of the major players of the NWFP sector, a workshop gathering people together to learn, discuss, identify and prioritize actions is suggested. The purpose of the meeting would not be primarily to share research results, or development achievements; rather it would be to take that information and move to the next step, identifying and outlining practical, tangible actions that would encourage further development of the sector.

Specific objectives for the workshop might include the following:

* Share and learn from each others' experience,
* Set guidelines to follow through developing a conceptual model for data collection analysis and exchange.
* Develop strong mechanisms for the better understanding and the promotion of the sector in the Congo Basin. This would include facilitating exchange of information, setting up a data base, etc.

*** A draft proposal for the workshop follows.**

DRAFT
Proposal for an
International Expert Meeting on Non Wood Forest Products
in the Congo River Basin of central Africa

February, 1998, Limbe Botanical Gardens, Limbe, Cameroon

1) **Why an "expert" meeting?**

An "expert" meeting brings together experts (in their professional capacity and not as representatives of their country) who can discuss, evaluate and make recommendations on given topics. The term "expert" implies technical expertise, and indicates a technical rather than policy-driven meeting. This meeting will bring together a multi-disciplinary group from the Congo Basin and other regions of the tropics, and practitioners active in research, information dissemination and development of the NWFP sector.

1. **Objectives of this expert meeting**:

To gain insight into the present resource situation and utilization status of major high value NWFP (harvested from wild or semi-domesticated sources) in the Congo River Basin, their potential, and the problems and issues to be addressed for their incorporation into the sustainable management of the region's forests.

To assess (and raise the awareness of) the importance of NWFP for rural development, conservation of biodiversity, and role in the sustainable management of the region's forests.

To identify key constraints (and possible solutions) related to the development of the sector. For example, forest resource management options (incorporate NWFP management into timber management operations; ongoing development of criteria to assess sustainability of both timber and NWFP extraction practices); forestry code affecting land tenure, local access to and management of forests; technology and practices concerning harvest, transformation, conservation, packaging, transportation and marketing, etc.

Develop strong mechanisms for better communication within the sector in the Congo Basin. This might include facilitating exchange of information, developing a conceptual model for data collection analysis and exchange, setting up a regional database system, etc.

To provide short, medium, and long term recommendations for action at various levels to develop a NWFP sector that is economically feasible, ecologically sustainable, and socially acceptable.

Tentative date: February 1998

Duration:	4 days, including one day field trip to (to be identified)
Tentative place:	Limbe Botanical Gardens, Limbe, Cameroon
Organizing institutions:	USDA Forest Service, FAO, other
Technical Assistance:	USDA Forest Service, FAO, Mt. Cameroon Proj.)
Funding support:	USDA Forest Service, FAO (IUCN, The Tropenbos Foundation, CIFOR?)

Outline of the Workshop: Proposed duration of 4 days (including a one-day field trip), with three days of presentations/discussions on the following topics (for which x background papers will be prepared and posted to participants prior to the workshop; a detailed workshop agenda will be elaborated later).

1. Review of the current status of the NWFP sector within the Congo River Basin:
   * NWFP resources and prospects for domestication/cultivation
   * User rights, people's participation in forest management, collection and harvesting of NWFP
   * Harvest, processing and marketing of NWFP
   * Major NWFP production and trade statistics

1. Assessment of the importance of NWFP for rural development, conservation of biodiversity, and role in the sustainable management of the region's forests.

2. Identify key constraints and possible solutions to the development of the sector.

3. Establish framework for better communication within the sector in the Congo Basin.

4. Recommendations for development of a NWFP sector that is economically feasible, ecologically sustainable, and socially acceptable.

Profile of participants: Approximately 25-30 experts from the region as well as relevant NWFP experts from other regions; including technical experts covering the NWFP sector from different disciplines; representatives of NGO, governmental agencies on forestry and rural development, integrated conservation development projects, the private sector, and any other relevant groups or individuals.

Background of this meeting: Since 1994, in the development stages of the CARPE project, the NWFP sector has been identified as a possible source of alternative income and sustainable management of the forest resources of the Congo River Basin.

Proposed tentative workplan and budget considerations for the preparation of the workshop:

Preliminary workplan outline:

1. Presentation/discussion and amendments of objectives and outline to the workshop organizers (ASAP).
2. Final outline of workshop as okayed by the workshop organizers (ASAP; early September 97).
3. Wide distribution of final outline to solicit interest in participation/collaboration with potential partners. (Sept 1997)
4. Arranging key logistical requirements: meeting rooms, hotels, selection of field trip, etc. (ASAP; by December 1997?)
5. Preparation of x key background/position papers to be presented at the workshop (by Dec 97)
6. Posting of x key background papers and any other relevant documents to the participants for information/discussion (Jan 98)

Preliminary budget considerations:

Assumptions:

* Participants will pay their own travel expenses (or by organization)
* One day field trip will be held near meeting place to reduce expenses
* Financial and in-kind contribution from other agencies interested in participating in the meeting, will be sought in order to share costs.

Appendix 1.

Cameroon Results:

Institutional Information

Organizations contacted

Organizational Identity	# Resp
CIFOR	1
IITA	1
WWF	2
APFT	2
ICRAF	1
Tropenbos-Cameroon	3
SNV	1
Limbe Botanical Gardens/Mt. Cameroon Project	1
U.S. Peace Corps-Cameroon	1
IRAD	1
CIEFE	1
IUCN	1
ECOFAC	1

Most of the people were attached to an integrated conservation development project, and addressed NWFP obliquely. CIFOR, APFT and Tropenbos address NWFP specifically, and IRAD and Limbe Botanical Gardens address NWFP via genetic conservation for biodiversity and food concerns.

NWFP sector work in relation to overall institutional objective

Overall objective	# Resp
Conservation	7
Economic alternative	7
Capacity building	
Sustainable forest management	5
Urban/forest relationship	1
Domestication	2
Human perspective of the forest	3
Inventory	2

Rural development workers, researchers and conservation workers all saw the development of the NWFP sector as a potential economic alternative. Overall objectives of forest ecosystem conservation, soil fertility conservation, and sustainable forest management all view NWFP as possible ways to add value to a standing or intact forest system.

Product Specific Information

Nature of NWFP under study:

Nature of NWFP	# Resp	Nature of NWFP	# Resp
Socio-economic	16	Ethnobotanical	8
Domestication (propagation, cultivation)	9	Bioprospecting (physical/chemical properties)	2
Biology/ecology	6	Uses of NWFP:	
		Indigenous peoples' knowledge	12
		Industrial production	1
		Commercial production	1
Markets:		Policy issues:	
Distribution	4	Institutional land use	5
Chain of production	7	Tenure issues	9
Trade statistics	1	Property rights	1
Prices	7	Forest management policy issues	3
Collection for market	4		
Gender issues	14	Generational issues	4
Hunting	1	Impact of modern world (technology, infrastructure, market economy¼)	6

Most of the research and work is socio-economic in nature, and happen to address NWFP only in the context of the use of the forest by human inhabitants. None of the studies focused specifically on gender issues, yet that topic was mentioned several times.

NWFP under study:

Product *	**# Resp**	**Product**	**# Resp**
Fruits	8	Nuts	6
Leaves	2	Roots	1
Spices	5	Gums	
Natural pigments, dyes	1	Resins	2
Fibers		Tannins	
Bark	4	Rattan	2
Woodlots	2	Mushrooms	1
Essential oils		Medicinal plants	7
Insects	2	Bushmeat	
Snails	1	Game ranching	1
Fishing	2		

Six informants reported that they are interested in whatever the human population they are working with identifies as a NWFP. Their focus is on humans/the forest system, rather than specific NWFP. These responses are not included in this table. Of the studies that addressed a specific product, most looked at wild fruit (*Irvingia gabonensis, Dacryodes edulis*), nuts (*Irvingia*), and a range of medicinal plants (including *Prunus africana* as the most commercially successful). Other frequently mentioned species included rattan (*Palmae* spp), chewstick

(*Garcinia manii*), and eru (*Gnetum africanum*).

The most common approach to NWFP study was to elicit, deliberately or incidentally, NWFP identification from rural people rather than to begin with a specific NWFP product in mind

Information Transfer

Target audience for NWFP research

Audience	**# Resp**	**Audience**	**# Resp**
Rural people	14	Researchers/University	10
Government policy makers	4	Organization/NGO	10

As a number of the people interviewed work with rural development in one way or another, it is not surprising that rural populations are the greatest audience. These same people operate within projects and programs funded by universities and NGOs. Very few identified policy makers as their audience.

Sharing of results

Method	**# Resp**	**Method**	**# Resp**
Journal articles	10	Video	
(Internal) reports	7	Newspaper	4
2-3 page briefs	5	Radio/TV	5
Pamphlets	9	WEB site	4
Seminar	9	Pictures/drawings	6
Conference	7	Books	2
Training	7	Calendars/postcards	2
Farmer/village meeting	9	Skits	1
Educational curriculum	3	Post graduate work	4

Most researchers publish in journals, and present at seminars and conferences. Several produce 2-3 page briefs or pamphlets. Most program administrators produce reports for their organization and the relevant government ministries, and work with villagers via one-to-one contact and farmer/village meetings. Some conservation projects have begun to produce cards, calendars, etc., to publicize their concerns. Flip charts, histograms, and other visual aids are popular when recording or transmitting information at village meetings.

Data Collection and Management

Type of data collected

Type of data	# Resp	Type of data	# Resp
Bibliographic	7	Numeric	11
Descriptive	12	Plant ecology/physiology	9
Anecdotal	5	Animal ecology/physiology	2
Historic uses	2	Mapping, photos, GIS	3
Inventory	5		

The vast majority of data that have been collected to date on NWFP have been qualitative. Quantitative data is largely limited to market studies, economic analysis and specific product (e.g. rattan, *Prunus*) studies. A number of market studies carried out by CIFOR, Tropenbos, and APFT contain data coded here as numeric, descriptive, anecdotal and inventory types.

Openness to data sharing

Data sharing agreements	# Resp
Yes, willing to share	17
With whomever	7
With whomever, as long as data has been verified and is cited	3
With whomever, if data has been verified, is cited, and the researcher's organization permits	8
Formal agreements with universities	2
Formal agreements with other large NGOs	3

All the people interviewed were, in principal, willing to share data. Most qualified their willingness by saying the data would need to have been checked, cleaned up, and then cited as to the author. Agreements for data sharing were largely informal at a researcher level, becoming increasingly formal as the funding organization was implicated. Long-term collaborative relationships such as between large NGOs or between an university and a NGO were more likely to be formalized.

Database management system

Data management tool	**# Resp**
Database management system? (yes)	5
Initial stages of development	3
Advanced stages of development	2
How do you gain access to the database	
Letter/email/phone/fax	3
Library on site	2
Is your data computerized (yes)	17
What software do you use most of the time?	

Software:	**# Resp**	**Software:**	**# Resp**
Microsoft Word	7	Macintosh Systems	
Microsoft Excell	7	D-Base	1
Lotus	1	Power Point	2
Word Perfect	1	Quattro Pro	1

Though most of the data have been computerized, very few of the organizations have database management systems. The ones that do (WWF, IUCN, APFT and Tropenbos) are large NGOs, and the database is not situated in the Central African region, nor is the database exclusive to NWFP or to data from this region. However, as most of the data is on disk, it would be relatively simple to contact the researcher and arrange for a disk or hard copy of data to be mailed/Faxed/emailed.

Most of the interviewees use Word or Excell; more than one commented that they had begun, for one reason or another, with researchers using a variety of software, and then found that that hampered efforts to build databases or share data between researchers. Most have moved or will move in the next phase of their project, to all researchers using similar software. Peace Corps uses Macintosh, and SNV uses D-Base.

What Internet capacity?

Capacity	# Resp	Capacity	# Resp
Computers are networked	7	Interested in email access (yes)?	17
Within organization	7	Yes, but hesitate due to expense and slow access speeds	9
Parent organization	7	With whom would you communicate?	
		General public	11
		Researchers in the region	5

Nearly everyone was interested in email connections; only the larger NGOs (WWF, Tropenbos, IUCN and SNV) are networked within their organization. Even these have occasional communication troubles, because the phone lines are undependable outside of major cities (like Yaounde or Douala). A number of people mentioned that they were interested and would like to make more use of email, but that they hesitate because of the expense, and because transmission (especially on the Web) of information can be very slow and inefficient. Web access seemed less important to people than email; relatively little information is available on the Web that would be directly relevant to workers in the region. However, email communications, for discussion and communication with other researchers and projects in the region, was seen as a valuable tool.

Appendix 2

Gabon Results

Institutional Information

Organizations contacted

Organizational Identity	# Resp
University of Omar Bongo	1
ForAFRI	1
PAFT	2
IRET	1
U.S. Peace Corps	1
IPHEMETRA/ CENAREST	1
LeRoy Gabon	1
JARDI-GAB	1
APFT	1
PlantAfrica	1
European Union (including ECOFAC)	1
NGAPROL	1
PEF	1

Most of the individuals interviewed were interested in NWFP as an economic alternative; also as a tool in sustainable forest management. Several individuals represented private enterprises, interested in NWFP primarily from an economic point of view. Most, however, either worked for the government directly through universities, or as government workers assigned to integrated conservation development projects.

NWFP sector work in relation to overall institutional objective

Overall Objective	# Resp
Conservation	5
Economic alternative	2
Sustainable forest management	5
Domestication/ study of specific plant	6
Human perspective of the forest	2

Since independence Gabon has lived well off of oil, manganese, and timber revenues. It will run out, possibly, of oil in the next ten years, and are cutting its forests quickly. The economy is vulnerable to global market fluctuations for its natural resources. Gabon does not have a well-developed conservation mentality—because there really has not, until the last 20 years or so, been a great deal of stress placed on its forest systems. This situation is changing for a variety of reasons, not least of which is the fact that the oil reserves are dwindling, and that State is looking to replace oil moneys with revenue from leased forest concessions. Over the past several years, as the effects of logging, conversion of forest to agriculture, and increasing pressure on the forest's resource base became more apparent, a conservation ethic is emerging. This is reflected in the number of individuals, some of whom we interviewed, who are working in the area of the conservation and/or development of sustainable uses of the forests.

Product Specific Information

Nature of the NWFP under study:

Nature of NWFP	# Resp	Nature of NWFP	# Resp
Socio-economic	6	Ethnobotanical	5
Biology/ecology	9	Bioprospecting (physical/chemical props)	5
Domestication (propagation, cultivation)	5	Uses of NWFP	
		Indigenous people's knowledge	4
		Industrial	2
		Commercial	1
Markets		Policy issues	
Distribution	5	Institutional land use	4
Chain of production	4	Tenure issues	4
Trade statistics	0	Property rights	0
Prices	6	Forest management policy issues	2
Collection for market	2		
Gender issues	7	Generational issues	1
Hunting	0	Impact of modern world (technology, infrastructure, market economy..)	1

Most researchers directly addressing NWFP were botanists studying a specific plant species or group (Irvingia, Raffia palms, orchids, for example), seeking to understand their biology and characteristics with an eye to domestication and their introduction into agroforestry systems. Several people addressed NWFP as part of working with forest-based peoples, usually around a forest preserve where alternatives to slash and burn agriculture or timber are sought.

NWFP under study

Product *	# Resp	Product	# Resp
Fruits	6	Nuts	6
Leaves	2	Roots	2
Spices	2	Gums	0
Natural pigments, dyes	1	Resins	3
Fibers	0	Tannins	0
Bark	4	Rattan	2
Woodlots	0	Mushrooms	2
Essential oils	0	Medicinal plants	6
Insects	0	Bushmeat	0
Snails	0	Game ranching	2
Fishing	0	Ornamental plants	2

*Four informants reported that they are interested in whatever the human population they are working with identifies as a NWFP. Their focus is on humans/the forest system, rather than NWFP in specific. These responses are not included in this table.

People are researching *Irvingia, Dacryodes,* and other wild fruits and medicinals. Collectively, they look to useful, available products for the Gabonese population.

Information Transfer

Target audience for NWFP research

Audience	# Resp	Audience	# Resp
Rural people	8	Researchers/University	11
Government policy makers	10	Organization/NGO	7
Logging companies	5		

These responses reflect people we spoke with who are working with the government of Gabon to develop sustainable forest management practices. Remember too that 80% of the Gabonese population lives in cities; there are not a great number of Gabonese villagers one can address. The sense was more of the people of Gabon, versus the urban and the rural groupings identified in Cameroon.

Sharing of results

Method	# Resp	Method	# Resp
Journal articles	11	Video	1
(Internal) reports	12	Newspaper	3
2-3 page briefs	0	Radio/TV	4
Pamphlets	4	WEB site (in the near future)	4
Seminar	4	Pictures/drawings	3
Conference	6	Books	2
Training	3	Calendars/postcards	1
Farmer/village meeting	4	Skits, songs	1
Educational curriculum	2	Post graduate work	1
Medical products	1	Demonstration farm/plots	3

Not much variety. Researchers publish in professional journals, government workers produce reports for government agencies. Focus is pretty specific. Conservation development projects focus more on the general population; radio, education efforts in primary and secondary schools; skits, songs, comic books, books, etc. One comment made was that what is needed are many books, pamphlets, comic books, pictures, etc.; not expensive computer technology.

Data Collection and Management

Type of data collected

Type of data	# Resp	Type of data	# Resp
Bibliographic	6	Numeric	9
Descriptive	8	Plant ecology/physiology	8
Anecdotal	7	Animal ecology/physiology	1
Historic uses	3	Mapping, photos, GIS	2
Inventory	4	Ethnicity of users/producers	2

Botanists are researching NWFP species; they gather numeric and ecological data on medicinal and food plants that have been identified for them by anecdotal and descriptive information of local people. Other data attempt to assess sustainable forest management efforts.

Openness to data sharing

Data sharing agreements	**# Resp**
Yes, willing to share	8
With whomever, as long as data has been verified and is cited	
With whomever, if data has been verified, is cited, and the researcher's organization permits, and there may be a fee	1
Formal memo of understanding	3
Not willing to share confidential information	9

There were two pretty distinct groups. The researchers, development workers, and government workers were willing to share their verified data if they are properly cited. The private firms were willing to share some information, but much of their data is confidential and would not be available for distribution.

Database management system

Data management tool			**# Resp**
Database management system? (yes)			3
Advanced stages of development			3
How do you gain access to the database			
Letter/email/phone/fax			3
Library on site			3
Is your data computerized (yes)			13
What software do you use most of the time?			
Software:	**# Resp**	**Software:**	**# Resp**
Microsoft Word	4	Macintosh Systems	6
Microsoft Excell	1	In-house program (l'Oukoume)	1

The larger NGOs (EU, U.S. Peace Corps, etc.) are the ones with an active database. Most people use Microsoft Word or PC-compatible versions of Macintosh Systems.

What Internet capacity?

Capacity	# Resp	Capacity	# Resp
Computers are networked	2	Interested in email access (yes)?	12
Within organization	2	Yes, but hesitate due to expense and slow access speeds	2
Parent organization	2	With whom would you communicate?	
		General public	10
		Researchers in the region	3

Nearly everyone was interested in email connections; only the larger NGOs (Peace Corps, ForAFRI) are networked within their organization. Even these have occasional communication troubles, primarily because Internet access is so new to Gabon that many of the problems have not yet been corrected in the system. Additionally, phone access outside of Libreville is limited and undependable. A number of people mentioned that they were interested and would like to make more use of email, but that they hesitate because of the expense, and because transmission (especially on the Web) of information can be very slow and inefficient. Web access seemed less important to people than email; relatively little information is available on the Web that would be directly relevant to workers in

the region. However, email communications, for discussion and communication with other researchers and projects in the region, was seen as a valuable tool.

Appendix 3

Sample Questionnaire

Survey of NTFP Sector Actors in the Central African Region

Date of Interview:_____
Interview personnel:_____
Identification code:_____

****

1. What is the organization we are talking with ?

Country
Organizational Identity
Year of establishment/finish
Source of funding
Cooperators

2. Who is the individual we are talking with?

Name
Mailing address

FAX
Tel
Email
WebSite

3. Does the organization have a specific section addressing NTFPs?

Name of NTFP sector:
Acronym
Area/s of study in the NTFP sector

What is their ultimate objective in working with NTFPs, how does that work fit in with the rest of their program?

What collaborative efforts and with which others doing NTFP work (get organization and individual information)?

What is the nature of their collaboration?

Identification code:_____

For each NTFP activity

Names of research team (note who is chief of party):

Title of Activity :

Start date and expected finish date of activity:
Mailing address:
Tel
FAX
Email
Location on Website:

Describe your area of study in the NTFP sector:

Socio-economic
Ethnobotanical
Biology/ecology
Bioprospecting (physical/chemical properties)
Domestication (propagation and cultivation)
Uses of NTFPS
- indigenous people's
- industrial
- commercial

Markets
- distribution
- chain of production
- trade statistics
- prices
- production for markets

Policy issues
- institutional land use/policy/tenure policies

Gender/generational issues
Other (specify)

Identification code:_____

Describe the nature of the NTFP under study:

Fruits
Nuts
Other food (specify)
Spices and condiments
Gums
Natural pigments and dyes
Resins
Fibers
Tannins
Essential oils
Medicinal plants
Insect products
Other animal products
Other products:

Who is your target audience?

How will you transfer your information? (Outputs, their form and timing):

Journal articles
2-3 page briefs
Pamphlets
Videos
Newspaper articles
radio/TV presentations
WebSite
Pictures/drawings
Other

Other literature, drafts they think we should be aware of or have:

Identification code:_____

4. What type of data are you collecting with respect to NTFPs?

Name of study/chief researcher

Type of data collected

Bibliographic
Descriptive
Anecdotal
Historic uses
Numeric
Plant ecology/physiology
Other (specify)

How willing to share data are you, and with whom?

Please describe data sharing/gathering agreements you've developed

Do you have a database management system? (yes/no)

If yes, what is the status of your database?

- Initial stages of development
- Advanced stages of development, ready soon
- Operational

How do people gain access to your database?

- At the database center with assistance from database personnel
- At the database center requiring no assistance
- By letter, FAX, Email, phone with database personnel
- Computers at workstations located outside the database center
- Other (specify)

If no, is your data computerized, in what software format?

Are your computers networked? (Yes/No)

If yes, to whom:

- Within your organization
- Parent organization
- Collaborators
- Universities
- Public domain

If no, would you be interested in becoming networked?

- With whom?

Identification code:_____

Part II: To Elicit Opinions for a NTFP Workshop

1. Are you interested in a workshop on the NTFP sector for the central African region?

2. What areas do you see as needing most urgently to be addressed, and in what manner?

3. Who would they recommend as a keynote speaker at a NTFP workshop, addressing what areas/issues?

4. If they were invited to participate or attend

Would they be available in early December (if no, then when in Jan)?

What means would they choose for their presentation (talk, poster, discussion...)

What area of interest
Are they in
Sessions they would attend
Ecological sustainability
Policy
Socio-cultural
Education
Markets

5. Do they have a willingness/capacity to come up with funding to sponsor the workshop in some form?

Appendix 4

Cameroon Contact List

Mr. Guido Broekhoven
IUCN
BP. 5506
Yaounde Cameroon
Tel: 237.20.88.88 Email: rocn@HQ.IUCN.org Fax: 237.20.88.88

Integrated conservation development projects. NWFP are involved as villager-identified economic alternative.

Dr. Serge Cogels
APFT
BP. 755
Yaounde Cameroon
Tel: 237.23.05.47 Email: apft@sdncmr.undp.org Fax: 237.20.59.03

Studies of forest communities. NWFP are implicated as a function of how people interact with the forest as part of their livelihood.

Mr. Louis Defo
APFT
BP. 755
Yaounde Cameroon
Tel: 237.23.05.47 Email: apft@sdncmr.undp.org Fax: 237.20.59.03

Study of rattan. " Les produits forestiers non-ligneux: le cas du rotin au sud cameroun."

Mme Anne Degrande
ICRAF
BP 2067 (Messa)
Yaounde Cameroon
Tel: 237.23.75.60 Email: CGNET CGI 418 Fax: 237.23.74.40

Agroforestry. Also domestication of wild fruit trees, specifically Irvingia species.

Dr. Chimere Diaw
IITA-HFS
BP. 2008 (Messa)
Yaounde Cameroon
Tel: 237.23.74.34 Email: c.diaw@cgnet.com Fax: 237.23.74.37

Community property rights, and land tenure issues. Inland fisheries

Mr. Louis Djomo
CIEFE/AFAN
BP. 2503
Yaounde Cameroon
Tel: 237.23.97.02 Email: no Fax: 237.23.97.01

AFAN (Africa Forestry Action Network, a network of African Forestry NGOs), also via CIEFE, has proposals for NTFP projects addressing inventory of NTFP and impact of harvest of NTFP on forest degradation.

Mr. Jean-Marie Fondoun
IRAD
BP 2067
Yaounde Cameroon
Tel: 237.23.75.60 Email: no Fax: 237.23.74.40

Conservation and utilization of phytogenetic resources, with a sub-program addressing wild fruit trees.

Mr. Roger Fotso
ECOFAC
BP 13844
Yaounde Cameroon
Tel: 237.21.42.73 Email: no Fax: 237.20.94.72

Integrated conservation development project. NWFP implicated in attempts to add value to intact forests, to change people's perceptions of the forest system.

Dr. Steve Gartlan
WWF
PO Box 6776
Yaounde Cameroon
Tel: 237.21.42.41 Email: SGartlan@WWFNET.ORG Fax:237.21.42.40

Integrated conservation and development projects, sustainable forest management strategies. Local community control of resource base and sustainable use of those resources. A study addressing Socio-economic valuation of NTFP.

Mr. Joseph Kengue
IRAD
BP 2067
Yaounde Cameroon
Tel:237.23.75.60 Email: no Fax: 237.23.74.40

Conservation and utilization of phytogenetic resources, specifically Dacryodes edulis (African pear, Prunier).

Mr. Michel Ndjatsana
WWF
P.O. Box 6776
Yaounde Cameroon
Tel: 237.21.42.41 Email: MNdjatsana@WWFNET.ORG Fax: 237.21.42.40

Community forest management. NWFP attention occurs as a function of community's identification. Seen primarily as an economic alternative to slash and burn agriculture.

Dr. Ousseynou N'Doye
CIFOR
HFS-IITA
BP 2008 (Messa)
Yaounde Cameroon
Tel: 237.23.74.34 Email: o.ndoye@cgnet.com Fax: 237.23.74.37

Markets in West Central Africa. Addresses production, marketing and consumption of NTFP. Also the role of NTFP in household livelihoods.

Mr. Alain Rouseau
SNV
BP 1239
Yaounde Cameroon
Tel: 237.20.27.72 Email: no Fax: 237.20.84.64

Rural community development. NWFP involvement as a function of villager identification an economic alternative.

Mr. Charles Tekwe
Mount Cameroon Project
P.O. Box 437
Limbe Cameroon
Tel: 237.33.24.93 Email: no Fax: 237.43.18.83

Integrated conservation development. Rural community development, NWFP involved as a function of villager's identification as an economic alternative.

Mr. Francois Tiayon
Tropenbos
BP 219
Kribi Cameroon
Tel: 237.46.13.22 Email: 105405.1222@compuserve.com Fax: 237.46.14.19

Sustainable forest management. "Use and Perceptions of the Forest by Bantu villages of the Bipindi Region."

Ms. Hans von Dijk
Tropenbos
BP 219
Kribi Cameroon
Tel: 237.46.13.22 Email: 105405.1222@compuserve.com Fax: 237.46.14.19

Sustainable forest management. NTFP study, "NTFP in the Bipindi-Akom II Region: An Economic and Ecology Assessment." Also NTFP inventory, habitat mapping and some market research.

Dr. Wim van Driel
Tropenbos
BP 219
Kribi Cameroon
Tel: 237.46.13.22 Email: 105405.1222@compuserve.com Fax: 237.46.14.19

Sustainable forest management strategies. NWFP seen as an economic alternative to slash and burn and timber harvest.

Mr. George Yebit
U.S. Peace Corps
BP. 817
Yaounde Cameroon
Tel: 237.20.25.34 Email: Fax: 237.21.53.98

Agroforestry, soil conservation. NWFP involvement is as a function of Volunteer secondary projects/interest.

Gabon Contact List

Mlle. Claudine Augee-Angoue
APFT
BP 9352
Libreville Gabon
Tel:241.77.55.33 Email: no Fax:241.77.55.34

Ph.D. research attempts to capture the knowledge of elders on the traditional uses of the forest by local villages, and on the effect of the recent arrival of the rail line in the area on the local economy and culture.

Mr. Jean-Philippe Biteau
JARDI-GAB
BP 2345
Libreville Gabon
Tel:241.73.30.38 Email: no Fax:241.73.81.18

Owns a successful ornamental plant business, uses forest species as ornamentals; special interest is in orchid species and developing gene banks. Works to educate people about the value of an intact forest.

Dr. Bourobou Bourobou
Laboratoire d'Ecologie
IRET--CENAREST BP. 13354
Libreville Gabon
Tel:241.73.25.78 Email: not yet but soon Fax:241.73.47.86

Research activities in rattan, wild fruit species/domestication, and edible and medicinal NWFP.

Mlle Isabelle Chabot
PAFT
2 Allee Rembrandt
37 540 Saint Cyr sur Loire
Paris, France
Tel: 02.47.51.79.15 Email:101663.2173@compuserve.com Fax:01.45.17.19.99

NTFP chain of production in Gabon, specifically rattan. Within PAFT, working to create laws to give villagers a formal role in the management of forests around their villages.

Dr. Jean-Noel Gassita
Plant Africa Cosmetics

BP 100
Libreville Gabon
Tel:241.74.87.98/75.65.41cell phone Email: no Fax: no

Study and development of Gabon's plants with medicinal value. Has identified, developed and markets various products based on medicinal plants.

Mr. Jean-Boniface Memvie
Projet Foret et Environnement
BP. 9293
Libreville Gabon
Tel:241.77.29.95 Email: very soon Fax:241.77.29.94

Not directly addressing NWFP. Works to contribute to the sustainable management of Gabon's forest resources, both natural and planted. Also to develop a forestry-school training both practical and able to respond to the private sector as well as the public, and also more informed in conservation issues and practices.

Mr. Bernard Mikala Ignounga
CENAREST and IPHAMETRA
BP. 2419
Libreville Gabon
Tel:241.73.47.87/88/19 Email: no Fax: no

Ethnobotany of medicinal plants, identification of active compounds.

Mr. Amedee Mouloungui
NGAPROL
BP 14044
Libreville Gabon
Tel:241.77.86.03 Email: no Fax: no

Does not address NWFP unless it is stipulated in his contract. His company inventories and lays out timber sales for private companies. He has observed concern for wildlife in the attitudes of some of his clients, but otherwise NWFP have not appeared in his contracts.

Dr. Robert Nasi
FORAFRI
BP. 643
Libreville Gabon
Tel:241.73.31.45 Email:101663.2173@compuserve.com Fax:241.73.65.76

Attempting to identify ways in which NWFP fit within sustainable forest management activities.

Mr. Alfred N'Goye
IRET
BP 5414

Libreville Gabon
Tel:241.72.24.32 Email: no Fax:241.77.29.94

Principal research in *Irvingia* species; in addition, other wild fruit species found in Gabon.

Mr. Jean-Pierre Poughon
LeRoy Gabon
BP 69
Libreville Gabon
Tel:241.74.32.51/52 Email: no Fax:241.76.15.94

No NWFP activity on the part of LeRoy Gabon. Would have to be lucrative on a large scale to interest them.

Dr. Jean-Pierre Profizi
PAFT
BP 199
Libreville Gabon
Tel:241.76.05.70 Email: no Fax:241.73.56.65

Personal focus is on Raffia palms, but is interested in all NWFP outside of medicinal plants. Within PAFT, working to create laws to give villagers a formal role in the management of forests around their villages.

Mr. Filippo Saracco
European Union
BP 321
Libreville Gabon
Tel:241.73.22.50/73.22.28 Email: ecatforenv@tiggabon.com Fax:241.73.65.54

Not specifically addressing NWFP at this time; ECOFAC in Gabon will begin a NTFP activity next year (1998). NWFP seen as an economic alternative to logging.

Mr. John Smith-Sreen
U.S. Peace Corps
BP 2098
Libreville Gabon
Tel:241.73.33.33 Email: Fax:241.73.84.70

Not specifically addressing NWFP, but FARM (Forest and Agricultural Resource Management) Project beginning 12/97 will likely address NWFP. The strategy of the project will team Volunteers specializing in agriculture, agroforestry, and marketing with those specializing in fish culture, and those teams will be spread through an area north of Libreville. The marketing Volunteers will complement the (presumed) increased production of goods generated by the others' work, and will work to develop markets.

Republic of the Congo Contacts

Mr. Ndinga Assitou
Directeur Regional
IUCN
B.P. 244
43 Avenue Paul Doumer
Brazzaville, Congo
Tel: 242-83-49-08 Fax: 242-83-49-07

Dr. Conrad Aveling
Coordinator
ECOFAC - Conservation et Utilisation Rationnelle des Ecosystemes Forestiers en Afrique Centrale
B.P. 62
Brazzaville, Congo
Tel: 242-83-76-56 Fax: 242-83-76-55

Mr. Prosper Bimangou
President
Cooperative API-Soleil
B.P. 2934
Brazzaville, Congo
Tel:: 242-83-66-99

Dr. Jean Pierre Makita Madzou
Faculte des Sciences
Universite Marien Ngouabi
Brazzaville, Congo

Mr. Robert Merriam
President
Micro Development Corps
108 High Street
Brattleboro, VT 05301 USA
Tel: 1-802-254-8569 Fax: 1-802-254-9117
mdc@sover.net

Mr. Isaac Moussa
President
Alliance Nationale pour la Nature (ANN)
43 Bis Rue Bagangoulou, Ouenze
Brazzaville, Congo
Tel: 242-82-02-37 Fax: 242-82-14-48

Dr. Jean-Marie Moutsambote
Chef du Laboratoire Botanique
Herbiere National/Centre d'Etudes sur les Ressources Vegetales (CERVE)
B.P. 181
Brazzaville, Congo

Dr. Rufin Antoine Oko
Conseiller a la Faune et aux Aires Protegees
[Also President: Alliance Congolaise pour la Conservation des Primates (ACCP)]
Ministere des Eaux et Forets
B.P. 13794
Brazzaville, Congo
Tel: 242-83-18-47 Bureau

Equatorial Guinea Contacts

Frank STENMANNS,
CUREF,
Aptd. 207,
Bata, Equatorial Guinea.
Tel: 240 83340 Fax: 240 83339

Crisantos OBAMA,
Curator, National Herbarium,
Aptd. 207,
Bata, Equatorial Guinea.
Tel: 240 83340 Fax: 240 83339

Contact for new National Herbarium.

Luiz Arranz SAAVEDRA,
ECOFAC,
BP 317
Bata, Equatorial Guinea.
Tel: 240 82817 Fax: 240 82131

John E. FA,
Jersey Wildlife Preservation Trust,
Les Augres Manor,
Jersey JE3 5BF,
Channel Islands,
United Kingdom.

Has published a great deal on conservation in EG, especially with regard to fauna.

Professor LEJOLY,
University of Brussels,
Belgium.

Contact person for CUREF botanical fieldwork in Rio Muni.

Javier B. JUSTE,
Estacion Biologica de Donana (CSIC),
Sevilla 41013, Spain.

Has published a great deal on conservation in EG, especially with regard to fauna.

P.W. ATKINSON,
School of Biological Sciences,
Univ. of East,
Norwich NR4 7TJ

Editor of the Gulf of Guinea Newsletter.

European Contacts

Belgium:

Dr. Anne Delorme
Universite Libre de Bruxelles
Centre d'Anthropologie Culturelle, CP 124
44 Avenue Jeane - 1050 Bruxelles
Belgium
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